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Gardens of Adonis

The revolution that never happened: how Neolithic peoples avoided agriculture

Let us turn, then, to the origins of farming.

PLATONIC PREJUDICES, AND HOW THEY CLOUD OUR IDEAS ABOUT THE INVENTION OF FARMING

‘Tell me this,’ writes Plato:

> Would a serious and intelligent farmer, with seeds he cared about and wished to grow to fruition, sow them in summer in the gardens of Adonis and rejoice as he watched them become beautiful in a matter of eight days; or if he did it at all, would he do this for fun and festivity? For things he really was serious about, would he not use his farmer’s craft, plant them in a suitable environment, and be content if everything he planted came to maturity in the eighth month?[1]

The gardens of Adonis, to which Plato is referring here, were a sort of festive speed farming which produced no food. For the philosopher, they offered a convenient simile for all things precocious, alluring, but ultimately sterile. In the dog days of summer, when nothing can grow, the women of ancient Athens fashioned these little gardens in baskets and pots. Each held a mix of quick-sprouting grain and herbs. The makeshift seedbeds were carried up ladders on to the flat roofs of private houses and left to wilt in the sun: a botanical re-enactment of the premature death of Adonis, the fallen

hunter, slain in his prime by a wild boar. Then, beyond the public gaze of men and civic authority, began the rooftop rites. Open to women from all classes of Athenian society, including prostitutes, these were rites of grieving but also wanton drunkenness, and no doubt other forms of ecstatic behaviour as well.

Historians agree that the roots of this women's cult lie in Mesopotamian fertility rites of Dumuzi/Tammuz, the shepherd-god and personification of plant life, mourned on his death each summer. Most likely the worship of Adonis, his ancient Greek incarnation, spread westwards to Greece from Phoenicia in the wake of Assyrian expansion, in the seventh century BC. Nowadays, some scholars see the whole thing as a riotous subversion of patriarchal values: an antithesis to the staid and proper state-sponsored Thesmophoria (the autumn festival of the Greek fertility goddess, Demeter), celebrated by the wives of Athenian citizens and dedicated to the serious farming on which the life of the city depended. Others read the story of Adonis the other way round, as a requiem for the primeval drama of serious hunting, cast into shadow by the advent of agriculture, but not forgotten – an echo of lost masculinity.[2]

All well and good, you may say, but what does any of this have to do with the origins of farming? What have the gardens of Adonis got to do with the first Neolithic stirrings of agriculture some 8,000 years before Plato? Well, in a sense, everything. Because these scholarly debates encapsulate just the sort of problems that surround any modern investigation of this crucial topic. Was farming from the very beginning about the serious business of producing more food to supply growing populations? Most scholars assume, as a matter of course, that this had to be the principal reason for its invention. But maybe farming began as a more playful or even subversive kind of process – or perhaps even as a side effect of other concerns, such as the desire to spend longer in particular kinds of locations, where hunting and trading were the real priorities. Which of these two ideas really embodies the spirit of the first agriculturalists; is it the stately and pragmatic Thesmophoria, or the playful and self-indulgent gardens of Adonis?

No doubt the peoples of the Neolithic – the world's first farmers – themselves spent a good deal of time debating similar questions. To get a sense of why we say this, let's consider what is probably the most famous Neolithic site in the world, Çatalhöyük.

IN WHICH WE DISCUSS HOW ÇATALHÖYÜK, THE WORLD'S OLDEST TOWN, GOT A NEW HISTORY

Located on the Konya Plain of central Turkey, Çatalhöyük was first settled around 7400 BC, and continued to be populated for some 1,500 years (for the purposes of mental calibration, roughly the same period of time that separates us from Amalafrida, Queen of the Vandals, who reached the height of her influence around AD 523). The site's renown derives partly from its surprising scale. At thirteen hectares, it was more town than village, with a population of some 5,000. Yet it was a town with no apparent centre or communal facilities, or even streets: just a dense agglomeration of one household after another, all of similar sizes and layout, each accessed by ladder from the roof.

If the overall plan of Çatalhöyük suggests an ethos of dreary uniformity, a maze of identical mud walls, the internal life of its buildings points in exactly the opposite direction. In fact, another reason for the site's fame is its inhabitants' distinctly macabre sense of interior design. If you've ever glimpsed the inside of a Çatalhöyük house you will never forget it: central living rooms, no more than sixteen feet across, with the skulls and horns of cattle and other creatures projecting inwards from the walls, and sometimes outwards from the fittings and furnishings. Many rooms also had vivid wall paintings and figurative mouldings, and contained platforms under which resided some portion of the household dead – remains of between six and sixty individuals in any given house – propping up the living. We can't help recalling Maurice Sendak's vision of a magical house where 'the walls became the world all around'.[3]

Generations of archaeologists have wanted to see Çatalhöyük as a monument to the 'origins of farming'. Certainly, it's easy to understand why this should be. It is among the first large settlements we know of whose inhabitants practised agriculture, and who got most of their nutrition from domesticated cereals, pulses, sheep and goats. It seems reasonable to see them, then, as the very engineers of what has been referred to since the time of V. Gordon Childe – prehistorian and author of *Man Makes Himself* (1936) and *What Happened in History* (1942) – as the 'Agricultural Revolution', and when first excavated in the 1960s Çatalhöyük's remarkable material culture was interpreted in this way. Clay figurines of seated women, including a famous example flanked by felines, were understood as depictions of a Mother Goddess, presiding over the fertility of women and crops. The wall-mounted ox-skulls ('*bucrania*') were assumed to be those of domestic cattle, dedicated to a taurine deity responsible for the protection and reproduction of herds. Certain buildings were identified as 'shrines'. All this ritual life was assumed to refer to serious farming – a Neolithic pageant play, more in the spirit of Demeter than Adonis.[4]

But more recent excavations suggest we have been too quick to write off Adonis.[5] Since the 1990s, new methods of fieldwork at Çatalhöyük produced a string of surprises, which oblige us to revise both the history of the world's oldest town and also how we think about the origins of farming in general. The cattle, it turns out, were not domestic: those impressive skulls belonged to fierce, wild aurochs. The shrines were not shrines, but houses in which people engaged in such everyday tasks as cooking, eating and crafts – just like anywhere else, except they happened to contain a larger density of ritual paraphernalia. Even the Mother Goddess has been cast into shadow. It is not so much that corpulent female figurines stopped turning up entirely in the excavations, but that the new finds tended to appear, not in shrines or on thrones, but in trash dumps outside houses with the heads broken off and didn't really seem to have been treated as objects of religious veneration.[6]

Today, most archaeologists consider it deeply unsound to interpret prehistoric images of corpulent women as 'fertility goddesses'. The very idea that they should be is the result of long-outmoded Victorian fantasies about 'primitive matriarchy'. In the nineteenth century, it's true, matriarchy was considered the default mode of political organization for Neolithic societies (as opposed to the oppressive patriarchy of the ensuing Bronze Age). As a result, almost every image of a fertile-looking woman was interpreted as a goddess. Nowadays, archaeologists are more likely to point out that many figurines could just as easily have been the local equivalents of Barbie dolls (the kind of Barbie dolls one might have in a society with very different standards of female beauty); or that different figurines might have served entirely different purposes (no doubt correct); or to dismiss the entire debate by insisting we simply have no idea why people created so many female images and never will, so any interpretations on offer are more likely to be projections of our own assumptions about women, gender or fertility than anything that would have made sense to an inhabitant of Neolithic Anatolia.

All of which might seem a bit pedantic, but in this hair-splitting, as we'll see, there's a great deal at stake.

IN WHICH WE ENTER SOMETHING OF AN ACADEMIC NO-GO ZONE, AND DISCUSS THE POSSIBILITY OF NEOLITHIC MATRIARCHIES

It's not just the idea of 'primitive matriarchy' that's become such a bugaboo today: even to suggest that women had unusually prominent positions in early farming communities is to invite academic censure. Perhaps it's not entirely surprising. In the same way that social rebels, since the 1960s, tended to idealize hunter-gatherer bands, earlier generations of poets, anarchists and bohemians had tended to idealize the Neolithic as an imaginary, beneficent theocracy ruled over by priestesses of the Great Goddess, the all-powerful distant ancestor of Inanna, Ishtar, Astarte and

Demeter herself – that is, until such societies were overwhelmed by violent, patriarchal Indo-European-speaking horsemen descending from the steppes, or, in the case of the Middle East, Semitic-speaking nomads from the deserts. How people saw this imagined confrontation became the source of a major political divide in the late nineteenth and early twentieth centuries.

To give you a flavour of this, let's look at Matilda Joslyn Gage (1826–98), considered in her lifetime one of the most prominent American feminists. Gage was also an anti-Christian, attracted to the Haudenosaunee 'matriarchate', which she believed to be one of the few surviving examples of Neolithic social organization, and a staunch defender of indigenous rights, so much so that she was eventually adopted as a Mohawk clan mother. (She spent the last years of her life in the home of her devoted son-in-law, L. Frank Baum, author of the *Oz* books – a series of a dozen volumes in which, as many have pointed out, there are queens, good witches and princesses, but not a single legitimate male figure of authority.) In *Woman, Church, and State* (1893), Gage posited the universal existence of an early form of society 'known as the Matriarchate or Mother-rule', where institutions of government and religion were modelled on the relationship of mother to child in the household.

Or consider one of Sigmund Freud's two favourite students: Otto Gross, an anarchist who in the years before the First World War developed a theory that the superego was in fact patriarchy and needed to be destroyed so as to unleash the benevolent, matriarchal collective unconscious, which he saw as the hidden but still-living residue of the Neolithic. (This he set out to accomplish largely through the use of drugs and polyamorous sexual relationships; Gross's work is now largely remembered for its influence on Freud's other favourite student, Carl Jung, who kept the idea of the collective unconscious but rejected Gross's political conclusions.) After the Great War, Nazis began to take up the same story of the 'Aryan' invasions from the exact opposite perspective, representing the imagined, patriarchal invaders as the ancestors of their master race.

With such intense politicization of what were obviously fanciful readings of prehistory, it's hardly surprising that the topic of 'primitive

matriarchy' became something of an embarrassment – the intellectual equivalent of a no-go zone – for subsequent generations. But it's hard to avoid the impression something else is going on here. The degree of erasure has been extraordinary, and far more than is warranted by mere suspicion of an overstated or outdated theory. Among academics today, belief in primitive matriarchy is treated as a kind of intellectual offence, almost on a par with 'scientific racism', and its exponents have been written out of history: Gage from the history of feminism, Gross from that of psychology (despite inventing such concepts as introversion and extroversion, and having worked closely with everyone from Franz Kafka and the Berlin Dadaists to Max Weber).

This is odd. After all, a century or so does seem more than enough time for the dust to settle. Why is the matter still so shrouded in taboo?

Much of this present-day sensitivity stems from a backlash against the legacy of a Lithuanian-American archaeologist named Marija Gimbutas. In the 1960s and 1970s, Gimbutas was a leading authority on the later prehistory of eastern Europe. Nowadays, she is often represented as just as much of an oddball as psychiatric rebels like Otto Gross, accused of having attempted to revive the most ridiculous of old Victorian fantasies in modern guise. This is not only untrue (very few of those who dismiss her work seem to have actually read any of it), but it has created a situation where scholars find it difficult even to speculate as to how hierarchy and exploitation came to take root in the domestic sphere – unless one wants to return to Rousseau, and the simplistic notion that settled farming somehow automatically generated the power of husbands over wives and fathers over children.

In fact, if you read the books of Gimbutas – such as *The Goddesses and Gods of Old Europe* (1982) – you quickly realize that their author was attempting to do something which, until then, only men had been allowed to do: to craft a grand narrative for the origins of Eurasian civilization. She did so taking as her building blocks the very kind of 'culture areas' we discussed in the last chapter and using them to argue that, in some ways

(though certainly not all), the old Victorian story about goddess-worshipping farmers and Aryan invaders was actually true.

Gimbutas was largely concerned with trying to understand the broad contours of a cultural tradition she referred to as 'Old Europe', a world of settled Neolithic villages centring on the Balkans and eastern Mediterranean (but also extending further north), in which, as Gimbutas saw it, men and women were equally valued, and differences of wealth and status were sharply circumscribed. Old Europe, by her estimation, endured from roughly 7000 BC to 3500 BC – which is, again, quite a respectable period of time. She believed these societies to be essentially peaceful, and argued that they shared a common pantheon under the tutelage of a supreme goddess, whose cult is attested in many hundreds of female figurines – some depicted with masks – found in Neolithic settlements, from the Middle East to the Balkans.[7]

According to Gimbutas, 'Old Europe' came to a catastrophic end in the third millennium BC, when the Balkans were overrun by a migration of cattle-keeping peoples – the so-called '*kurgan*' folk – originating on the Pontic steppe, north of the Black Sea. *Kurgan* refers to the most archaeologically recognizable feature of these groups: earthen tumuli heaped over the graves of (typically male) warriors, buried with weapons and ornaments of gold, and with extravagant sacrifices of animals and occasionally also human 'retainers'. All these features attested values antithetical to the communitarian ethos of Old Europe. The incoming groups were aristocratic and 'androcratic' (i.e., patriarchal), and were extremely warlike. Gimbutas considered them responsible for the westward spread of Indo-European languages, the establishment of new kinds of societies based on the radical subordination of women, and the elevation of warriors to a ruling caste.

As we've noted, all this bore a certain resemblance to the old Victorian fantasies – but there were key differences. The older version was rooted in an evolutionary anthropology that assumed matriarchy was the original condition of humankind because, at first, people supposedly didn't understand physiological paternity and assumed women were single-

handedly responsible for producing babies. This meant, of course, that hunter-gatherer communities before them should be just as matrilineal and matriarchal, if not more so, than early farmers – something many did indeed argue from first principles, despite a complete lack of any sort of evidence. Gimbutas, though, was not proposing anything of this sort: she was arguing for women's autonomy and ritual priority in the Middle Eastern and European Neolithic. Yet by the 1990s many of her ideas had become a charter for ecofeminists, New Age religions and a host of other social movements; in turn, they inspired a slew of popular books, ranging from the philosophical to the ridiculous – and in the process became entangled with some of the more extravagant older Victorian ideas.

Given all this, many archaeologists and historians concluded that Gimbutas was muddying the waters between scientific research and pop literature. Before long, she was being accused of just about everything the academy could think to throw at her: from cherry-picking evidence to failing to keep up with methodological advances; accusations of reverse sexism; or that she was indulging in 'myth-making'. She was even subject to the supreme insult of public psychoanalysis, as leading academic journals published articles suggesting her theories about the displacement of Old Europe were basically phantasmagorical projections of her own tumultuous life experience, Gimbutas having fled her mother country, Lithuania, at the close of the Second World War in the wake of foreign invasions.[8]

Mercifully, perhaps, Gimbutas herself, who died in 1994, was not around to see most of this. But that also meant she was never able to respond. Some, maybe most of these criticisms had truth in them – though similar criticisms could no doubt be made of pretty much any archaeologist who makes a sweeping historical argument. Gimbutas's arguments involved myth-making of a sort, which in part explains this wholesale takedown of her work by the academic community. But when male scholars engage in similar myth-making – and, as we have seen, they frequently do – they not only go unchallenged but often win prestigious literary prizes and have honorary lectures created in their name. Arguably Gimbutas was seen as meddling in, and quite consciously subverting, a genre of grand narrative

that had been (and still is) entirely dominated by male writers such as ourselves. Yet her reward was not a literary prize, or even a place among the revered ancestors of archaeology; it was near-universal posthumous vilification, or, even worse, becoming an object of dismissive contempt.

At least, until quite recently.

Over the last few years, the analysis of ancient DNA – unavailable in Gimbutas's time – has led a number of leading archaeologists to concede that at least one significant part of her reconstruction was probably right. If these new arguments, put forward on the basis of population genetics, are even broadly correct, then there really was an expansion of herding peoples from the grasslands north of the Black Sea around the time Gimbutas believed it to have happened: the third millennium BC. Some scholars are even arguing that massive migrations took place out of the Eurasian steppe at that time, leading to population replacement and perhaps the spread of Indo-European languages across large swathes of central Europe, just as Gimbutas envisaged. Others are far more cautious; but either way, after decades of virtual silence, people are suddenly talking about such issues, and hence about Gimbutas's work, again.[9]

So what about the other half of Gimbutas's argument, that Early Neolithic societies were relatively free of ranks and hierarchies? Before even beginning to answer this question, we need to clear up a few misconceptions. Gimbutas in fact never argued outright for the existence of Neolithic matriarchies. Indeed, the term seems to mean very different things to different authors. Insofar as 'matriarchy' describes a society where women hold a preponderance of formal political positions, one can indeed say this is exceedingly rare in human history. There are plenty of examples of individual women wielding real executive power, leading armies or creating laws, but few if any societies in which *only* women are normally expected to wield executive power or lead armies or create laws. Even strong queens like Elizabeth I of England, the Dowager Empress of China or Ranavalona I of Madagascar did not primarily appoint other women to be their chief advisors, commanders, judges and officials.

In any case, another term – ‘gynarchy’, or ‘gynaecocracy’ – describes the political rule of women. The word ‘matriarchy’ means something rather different. There is a certain logic here: ‘patriarchy’, after all, refers not primarily to the fact that men wield public office, but first and foremost to the authority of patriarchs, that is, male heads of household – an authority which then acts as a symbolic model for, and economic basis of, male power in other fields of social life. Matriarchy might refer to an equivalent situation, in which the role of mothers in the household similarly becomes a model for, and economic basis of, female authority in other aspects of life (which doesn’t necessarily imply dominance in a violent or exclusionary sense), where women as a result hold a preponderance of overall day-to-day power.

Looked at this way, matriarchies are real enough. Kandiaronk himself arguably lived in one. In his day, Iroquoian-speaking groups such as the Wendat lived in towns that were made up of longhouses of five or six families. Each longhouse was run by a council of women – the men who lived there did not have a parallel council of their own – whose members controlled all the key stockpiles of clothing, tools and food. The political sphere in which Kandiaronk himself moved was perhaps the only one in Wendat society where women did not predominate, and even so there existed women’s councils which held veto power over any decision of the male councils. On this definition, the Pueblo nations such as Hopi and Zuñi might also qualify as matriarchies, while the Minangkabau, a Muslim people of Sumatra, describe themselves as matriarchal for exactly the same reasons.[10]

True, such matriarchal arrangements are somewhat unusual – at least in the ethnographic record, which covers roughly the last 200 years. But once it’s clear that such arrangements can exist, we have no particular reason to exclude the possibility that they were more common in Neolithic times, or to assume that Gimbutas – by searching for them there – was doing something inherently fanciful or misguided. As with any hypothesis, it’s more a matter of weighing up the evidence.

Which takes us back to Çatalhöyük.

IN WHICH WE CONSIDER WHAT LIFE IN THE WORLD'S MOST FAMOUS NEOLITHIC TOWN MIGHT HAVE ACTUALLY BEEN LIKE

Recently, a number of discoveries among the miniature art of Çatalhöyük appear to show that the female form was a special focus of ritual attention, skilled artisanship and symbolic reflection on life and death. One is a clay figure with typically corpulent female front, transitioning at the back to a carefully modelled skeleton via arms that look emaciated. Its head, now lost, was fixed into a hole at the top. Another female figurine has a tiny cavity in the centre of her back, into which a single seed from a wild plant had been placed. And within a domestic platform of the sort used for burials, excavators found one particularly revealing and exquisitely carved limestone figure of a woman. Its detailed rendering clarifies an aspect of the more common figures made in clay: the sagging breasts, drooping belly and rolls of fat appear to signify not pregnancy, as once was believed, but age.[11]

Such findings suggest that the more ubiquitous female figurines, while clearly not all objects of worship, weren't necessarily all dolls or toys either. Goddesses? Probably not. But quite possibly matriarchs of some sort, their forms revealing an interest in female elders. And no equivalent representations of male elders have been found. Of course, this doesn't mean we should ignore the many other Neolithic figurines that have possible phallic attributes, or mixed male-female attributes, or that are so schematic we shouldn't really try to identify them as male or female, or even as clearly human. Similarly, the occasional links between Neolithic figurines and masking – attested both in the Middle East and eastern Europe[12] – may relate to occasions or performances where such categorical distinctions were deliberately blurred, or even inverted (not unlike, say, the masquerades of the Pacific Coast of North America, where the deities and those impersonating them were almost invariably male).

There is no evidence that Çatalhöyük's female inhabitants enjoyed better standards of living than its male ones. Detailed studies of human teeth and skeletons reveal a basic parity of diet and health, as does the ritual

treatment of male and female bodies in death.[13] Yet the point remains that there exist no similarly elaborate or highly crafted depictions of male forms in the portable art of Çatalhöyük. Wall decoration is another matter. Where coherent scenes emerge from the surviving murals, they are mainly concerned with the hunting and teasing of game animals such as boar, deer, bear and bulls. The participants are men and boys, apparently depicted in different stages of life, or perhaps entering those stages through the initiatory trials of the chase. Some of these spritely figures wear leopard skins; in one deer-baiting scene, all have beards.

One thing to emerge clearly from the newer investigations at Çatalhöyük is the way in which household organization permeates almost every aspect of social life. Despite the considerable size and density of the built-up area, there is no evidence for central authority. Each household appears more or less a world unto itself – a discrete locus of storage, production and consumption. Each also seems to have held a significant degree of control over its own rituals, especially where treatment of the dead was concerned, although ritual experts may of course have moved between them. While it's unclear what social rules and habits were responsible for maintaining the autonomy of households, what seems evident is that these rules were learned mainly within the household itself; not just through its ceremonies, but also its micro-routines of cooking, cleaning floors, resurfacing walls with plaster, and so on.[14] All this is vaguely reminiscent of the Northwest Coast, where society was a collection of great houses, except that the inhabitants of these Neolithic houses show no sign of being divided into ranks.

The residents of Çatalhöyük seem to have placed great value on routine. We see this most clearly in the fastidious reproduction of domestic layouts over time. Individual houses were typically in use for between fifty and 100 years, after which they were carefully dismantled and filled in to make foundations for superseding houses. Clay wall went up on clay wall, in the same location, for century after century, over periods reaching up to a full millennium. Still more astonishing, smaller features such as mud-built hearths, ovens, storage bins and platforms often follow the same repetitive

patterns of construction, over similarly long periods. Even particular images and ritual installations come back, again and again, in different renderings but the same locations, often widely separated in time.

Was Çatalhöyük, then, an 'egalitarian society'? There is no sign of any self-conscious egalitarian ideal in the sense of, say, a concern with uniformity in the art, architecture or material culture; but neither are there many explicit signs of rank. Nonetheless, as individual houses built up histories, they also appear to have acquired a degree of cumulative prestige. This is reflected in a certain density of hunting trophies, burial platforms and obsidian – a dark volcanic glass, obtained from sources in the highlands of Cappadocia, some 125 miles north. The authority of long-lived houses seems consistent with the idea that elders, and perhaps elder women in particular, held positions of influence. But the more prestigious households are distributed among the less, and do not coalesce into elite neighbourhoods. In terms of gender relations, we can acknowledge a degree of symmetry, or at least complementarity. In pictorial art, masculine themes do not encompass the feminine, nor vice versa. If anything, the two domains seem to be kept apart, in different sectors of dwellings.

What were the underlying realities of social life and labour at Çatalhöyük? Perhaps the most striking thing about all this art and ritual is that it makes almost no reference to agriculture. As we've noted, domestic cereals (wheat and barley) and livestock (sheep and goats) were far more important than wild resources in terms of nutrition. We know this because of organic remains recovered in quantity from every house. Yet for 1,000 years the cultural life of the community remained stubbornly oriented around the worlds of hunting and foraging. At this point, one has to ask how complete our picture of life at Çatalhöyük really is and where the largest gaps may lie.

HOW THE SEASONALITY OF SOCIAL LIFE IN EARLY FARMING COMMUNITIES MIGHT HAVE WORKED

Only something like 5 per cent of Neolithic Çatalhöyük has been excavated.[15] Soundings and surveys offer no particular reason to believe that other parts of the town were substantially different, but it's a reminder of how little we really know, and that we also have to think about what is missing from the archaeological record. For instance, it is clear that house floors were regularly swept clean, so the distribution of artefacts around them is far from a straightforward representation of past activities, which can only be reliably tracked through tiny fragments and residue embedded in the plaster.[16] Traces have also been found of reed mats that covered living surfaces and furnishings, further disturbing the picture. We don't necessarily know everything that was happening in the houses, or perhaps even half of it – or, indeed, how much time was actually spent living in these cramped and peculiar structures at all.

In considering this, it's worth taking a broader look at the site of Çatalhöyük in relation to its ancient surroundings, which archaeological science allows us to reconstruct, at least in outline. Çatalhöyük was situated in an area of wetlands (whence all the mud and clay) seasonally flooded by the Çarşamba River, which split its course as it entered the Konya Plain. Swamps would have surrounded the site for much of the year, interspersed with raised areas of dry land. Winters were cold and damp, summers oppressively hot. From spring to autumn, sheep and goats would have been moved between areas of pasture within the plain, and sometimes further into the highlands. Arable crops were most likely sown late in the spring on the receding floodplain of the Çarşamba, where they could ripen in as little as three months, with harvesting and processing in the late summer: fast-growing grains, in the season of Adonis.[17]

While all these tasks may have taken place quite close to the town, they will inevitably have involved a periodic dispersal and reconfiguration of working arrangements and of general social affairs. And, as the rites of Adonis remind us, another kind of social life altogether may have existed on the rooftops. It is in fact quite likely that what we are seeing in the surviving remains of Çatalhöyük's built environment are largely the social arrangements prevalent in winter, with their intense and distinctive

ceremonialism focused upon hunting and the veneration of the dead. At that time of year, with the harvest in, the organization required for agricultural labour would have given way to a different type of social reality as the community's life shrank back towards its houses, just as its herds of sheep and goats shrank back into the confines of their pens.

Seasonal variations of social structure[18] were alive and well at Çatalhöyük, and these carefully balanced alternations seem central to understanding why the town endured. An impressive degree of material equality prevailed in the everyday exchanges of family life, within and between houses. Yet at the same time, hierarchy developed to slower rhythms, played out in rituals that joined the living to the dead. Shepherding and cultivation surely involved a strict division of labour, to safeguard the annual crop and protect the herds – but if so it found little space in the ceremonial life of the household, which drew its energy from older sources, more Adonis than Demeter.

A certain controversy has arisen, however, concerning just where the people of Çatalhöyük planted their crops. At first, microscopic studies of cereal remains suggested a dry-land location. Given the known extent of ancient swamps in the Konya basin, this would imply that arable fields were located at least eight miles from the town, which hardly seems plausible in the absence of donkeys or ox carts (remember, cattle were not yet domesticated in this region, let alone harnessed to anything). Subsequent analyses support a more local setting, on the alluvial soils of the Çarşamba floodplain.[19] The distinction is important for a variety of reasons, not just ecological but also historical, even political, because how we picture its practical realities has direct implications for how we view the social consequences of Neolithic farming.

We must take an even broader perspective to see exactly why.

ON BREAKING APART THE FERTILE CRESCENT

When Çatalhöyük was first investigated, in the 1960s, the striking discovery of houses lined with cattle skulls led many to assume, quite reasonably, that the plain of Konya was an early cradle of animal domestication. These days it is known that cattle (and boar) were first domesticated 1,000 years before Çatalhöyük was founded, and in another location altogether: around the upper reaches of the Tigris and Euphrates valleys, which lie further east into Asia, within the area known as the Fertile Crescent. It was from that general direction that the founders of Çatalhöyük obtained the basis of their farming economy, including domestic cereals, pulses, sheep and goats. But they didn't adopt domestic cattle or pigs. Why not?

Since no environmental obstacles were present, one has to assume an element of cultural refusal here. The best contender for an explanation is also the most obvious. As Çatalhöyük's art and ritual suggests, wild cattle and boar were highly valued as prey, and probably had been for as long as anyone could remember. In terms of prestige, there was much to be lost, perhaps especially for men, by the prospect of surrounding these dangerous animals with more docile, domestic varieties. Allowing cattle to remain exclusively in their ancient wild form – a big beast, but also lean, fast and highly impressive – also meant keeping intact a certain sort of human society. Accordingly, cattle remained wild and glamorous until around 6000 BC.[20]

So, what exactly *is*, or was, the Fertile Crescent? First, it's important to note that this is a completely modern concept, the origins of which are as much geopolitical as environmental. The term Fertile Crescent was invented in the nineteenth century, when Europe's imperial powers were carving up the Middle East according to their own strategic interests. Partly because of the close ties between archaeology, ancient history and the modern institutions of empire, the term became widely adopted among researchers to describe an area from the eastern shores of the Mediterranean (modern Palestine, Israel and Lebanon) to the foothills of the Zagros Mountains (roughly the Iran–Iraq border), crossing parts of Syria, Turkey and Iraq on the way. Now it is only prehistorians who still use it, to indicate

the region where farming began: a roughly crescent-shaped belt of arable lands bounded by deserts and mountains.[21]

Yet in ecological terms, it's really not one crescent but two – or no doubt even more, depending how closely one chooses to look. At the end of the last glacial period, around 10,000 BC, this region developed in two clearly distinct directions. Going with the topography, we can discern an 'upland crescent' and a 'lowland crescent'. The upland crescent follows the foothills of the Taurus and Zagros Mountains, running north of the modern border between Syria and Turkey. For foragers at the end of the last Ice Age, it would have been something of an open frontier; an expanding belt of oak-pistachio forest and game-rich prairie intersected by river valleys.[22] The lowland crescent to the south was characterized by *Pistacia* woodlands, as well as tracts of fertile terrain bound tightly to river systems or to the shores of lakes and artesian springs, beyond which lay deserts and barren plateaus.[23]

Between 10,000 and 8000 BC, foraging societies in the 'upland' and 'lowland' sectors of the Fertile Crescent underwent marked transformations, but in quite different directions. The differences cannot easily be expressed in terms of modes of subsistence or habitation. In both regions, in fact, we find a complex mosaic of human settlement: villages, hamlets, seasonal camps and centres of ritual and ceremonial activity marked out by impressive public buildings. Both regions, too, have produced varying degrees of evidence for plant cultivation and livestock management, within a broader spectrum of hunting and foraging activities. Yet there are also cultural differences, some so striking as to suggest a process of schismogenesis, of the sort we described in the previous chapter. It might even be argued that, after the last Ice Age, the ecological frontier between 'lowland' and 'upland' Fertile Crescent also became a cultural frontier with zones of relative uniformity on either side, distinguished almost as sharply as the 'Protestant foragers' and 'fisher kings' of the Pacific Coast.

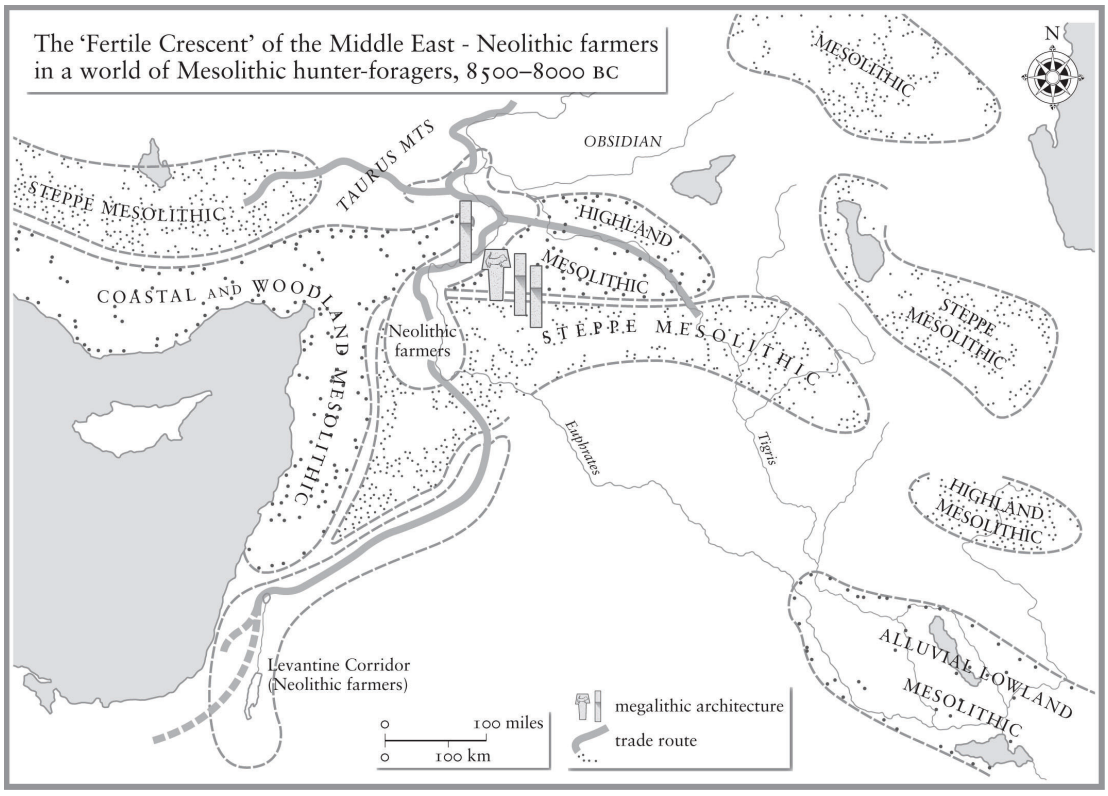
In the uplands, there was a striking turn towards hierarchy among settled hunter-foragers, most dramatically attested at the megalithic centre

of Göbekli Tepe and at nearby sites like that recently discovered at Karahan Tepe. In the lowlands of the Euphrates and Jordan valleys, by contrast, such megalithic monuments are absent, and Neolithic societies followed a distinct but equally precocious path of change, which we will shortly describe. What's more, these two adjacent families of societies – let's call them 'lowlanders' and 'uplanders' – were well acquainted. We know this because they traded durable materials with each other over long distances, among them the same materials, in fact, that we found circulating as valuables on the West Coast of North America: obsidian and minerals from the mountains, and mollusc shells from the coasts. Obsidian from the Turkish highlands flowed south, and shells (perhaps used as currency) flowed north from the shores of the Red Sea, ensuring that uplanders and lowlanders stayed in touch.[24]

The routes of this prehistoric trade circuit contracted as they progressed southwards into less evenly populated areas, starting at the Syrian bend of the Euphrates, winding through the Damascus basin and down into the Jordan valley. This route formed the so-called 'Levantine Corridor'. And the lowlanders who lived here were devoted craft specialists and traders. Each hamlet seems to have developed its own expertise (stone-grinding, bead-carving, shell-processing and so on), and industries were often associated with special 'cult buildings' or seasonal lodges, pointing to the control of such skills by guilds or secret societies. By the ninth millennium BC, larger settlements had developed along the principal trade routes. Lowland foragers occupied fertile pockets of land among the drainages of the Jordan valley, using trade wealth to support increasingly large, settled populations. Sites of impressive scale sprang up in such propitious locations, some, such as Jericho and Basta, approaching ten hectares in size.[25]

To understand the importance of trade in this process is to appreciate that the lowland crescent was a landscape of intimate contrasts and conjunctures (very similar, in this respect, to California). There were constant opportunities for foragers to exchange complementary products – which included foods, medicines, drugs and cosmetics – since the local

growth cycles of wild resources were staggered by sharp differences in climate and topography.[26] Farming itself seems to have started in precisely this way, as one of so many 'niche' activities or local forms of specialization. The founder crops of early agriculture – among them emmer wheat, einkorn, barley and rye – were not The 'Fertile Crescent' of the Middle East – Neolithic farmers in a world of Mesolithic hunter-foragers, 8500–8000 BCdomesticated in a single 'core' area (as once supposed), but at different stops along the Levantine Corridor, scattered from the Jordan valley to the Syrian Euphrates, and perhaps further north as well.[27]



At higher altitudes, in the upland crescent, we find some of the earliest evidence for the management of livestock (sheep and goats in western Iran, cattle too in eastern Anatolia), incorporated into seasonal rounds of hunting and foraging.[28] Cereal cultivation began in a similar way, as a fairly minor supplement to economies based mainly on wild resources: nuts, berries, legumes and other readily accessible foodstuffs. Cultivation, however, is rarely just about calories. Cereal production also brought people together in

new ways to perform communal tasks, mostly repetitive, labour-intensive and no doubt freighted with symbolic meaning; and the resulting foods were incorporated into their ceremonial lives. At the site of Jerf el-Ahmar, on the banks of the Syrian Euphrates – where upland and lowland sectors of the Fertile Crescent converge – the storage and processing of grain was associated less with ordinary dwellings than with subterranean lodges, entered from an opening in the roof and suffused with ritual associations.[29]

Before exploring some further contrasts between lowlanders and uplanders, it seems important to consider in a little more detail what these very earliest kinds of farming were actually like. To do this, we have to go deeper into the process of domestication.

ON SLOW WHEAT, AND POP THEORIES OF HOW WE BECAME FARMERS

In crops, domestication is what happens when plants under cultivation lose features that allow them to reproduce in the wild. Among the most important is the facility to disperse seed without human assistance. In wheat, seeds growing on the stalk are contained by tiny aerodynamic capsules known as spikelets. As wild wheat ripens, the connection between spikelet and stem (an element called the rachis) shatters. The spikelets free themselves and fall to the ground. Their spiky ends penetrate the soil, deep enough for at least some seed to survive and grow (the other ends project upwards, equipped with bristle-like awns to deter birds, rodents and browsing animals).

In domestic varieties, these aids to survival are lost. A genetic mutation takes place, switching off the mechanism for spontaneous seed dispersal and turning wheat from a hardy survivor into a hopeless dependant. Unable to separate from its mother plant, the rachis becomes a locus of attachment. Instead of spreading out to take on the big bad world, the spikelets stay rigidly fixed to the top part of the stem (the ‘ear’). And there they remain, until someone comes along to harvest them, or until they rot, or are eaten by

animals. So how did these genetic and behavioural changes in crops come about, how long did it take, and what had to happen in human societies to make them possible? Historians sometimes like to turn this question on its head. It is wheat, they remind us, that has domesticated people, just as much as people ever domesticated wheat.

Yuval Harari waxes eloquent on this point, asking us to think 'for a moment about the Agricultural Revolution from the viewpoint of wheat'. Ten thousand years ago, he points out, wheat was just another form of wild grass, of no special significance; but within the space of a few millennia it was growing over large parts of the planet. How did it happen? The answer, according to Harari, is that wheat did it by manipulating *Homo sapiens* to its advantage. 'This ape', he writes, 'had been living a fairly comfortable life hunting and gathering until about 10,000 years ago, but then began to invest more and more effort in cultivating wheat.' If wheat didn't like stones, humans had to clear them from their fields; if wheat didn't want to share its space with other plants, people were obliged to labour under the hot sun weeding them out; if wheat craved water, people had to lug it from one place to another, and so on.[30]

There's something ineluctable about all this. But only if we accept the premise that it does in fact make sense to look at the whole process 'from the viewpoint of wheat'. On reflection, why should we? Humans are very large-brained and intelligent primates and wheat is, well…a sort of grass. Of course, there are non-human species that have, in a sense, domesticated themselves – the house mouse and sparrow are among them, and so too probably the dog, all found, incidentally, in Early Neolithic villages of the Middle East. It's also undoubtedly true that, over the long term, ours is a species that has become enslaved to its crops: wheat, rice, millet and corn feed the world, and it's hard to envisage modern life without them.

But to make sense of the beginnings of Neolithic farming, we surely need to try and see it from the perspective of the Palaeolithic, not of the present, and still less from the viewpoint of some imaginary race of bourgeois ape-men. Of course, this is harder to do, but the alternative is to slip back into the realms of myth-making: retelling the past as a 'just-so'

story, which makes our present situation seem somehow inevitable or preordained. Harari's retelling is appealing, we suggest, not because it's based on any evidence, but because we've heard it a thousand times before, just with a different cast of characters. In fact, many of us have been hearing it from infancy. Once again, we're back in the Garden of Eden. Except now, it's not a wily serpent who tricks humanity into sampling the forbidden fruit of knowledge. It's the fruit itself (i.e. the cereal grains).

We already know how this one goes. Humans were once living a 'fairly comfortable life', subsisting from the blessings of Nature, but then we made our most fatal mistake. Lured by the prospect of a still easier life – of surplus and luxury, of living like gods – we had to go and tamper with that harmonious State of Nature, and thus unwittingly turned ourselves into slaves.

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What happens if we put aside this fable and consider what botanists, geneticists and archaeologists have found out in the past few decades? Let's focus on wheat and barley.

After the last Ice Age, these particular crops were among the first to be domesticated, along with lentils, flax, peas, chickpeas and bitter vetch. As we've noted, this process occurred in various different parts of the Fertile Crescent, rather than a single centre. Wild varieties of some of these crops grow there today, giving researchers the chance to make direct observations about how those plants behave, and even to reconstruct certain aspects of the technical process that led, 10,000 years ago, to domestication. Armed with such knowledge, they can also examine actual remains of ancient seeds and other plant remains, recovered in the many hundreds from archaeological sites in the same region. Scientists can then compare the biological process of domestication (reproduced under technological conditions similar to those of Neolithic cultivation) with the actual process that took place in prehistoric times and see how they match up.

Once cultivation became widespread in Neolithic societies, we might expect to find evidence of a relatively quick or at least continuous transition from wild to domestic forms of cereals (which is exactly what terms like the 'Agricultural Revolution' lead us to think), but in fact this is not at all what the results of archaeological science show. And despite the Middle Eastern setting, those findings do not add up to anything remotely resembling a Garden of Eden-type story about how humans haplessly stumbled their way into a Faustian pact with wheat. Just how far we are (or should be) from that kind of story was already clear to researchers some decades ago, once they began comparing actual prehistoric rates of crop domestication to those achieved under experimental conditions.

Experiments of this kind with wild wheat were first undertaken in the 1980s.[31] What they showed was that the key genetic mutation leading to crop domestication could be achieved in as little as twenty to thirty years, or at most 200 years, using simple harvesting techniques like reaping with flint sickles or uprooting by hand. All it would have taken, then, is for humans to follow the cues provided by the crops themselves. That meant harvesting after they began to ripen, doing it in ways that left the grain on the stem (e.g. cutting or pulling, as opposed to beating grain straight off the ear with a paddle), sowing new seed on virgin soil (away from wild competitors), learning from errors, and repeating the winning formula next year. For foragers seasoned in the harvesting of wild crops, these changes need not have posed major logistical or conceptual challenges. And there may also have been other good reasons to harvest wild cereals in this manner, besides obtaining food.

Harvesting by sickle yields straw as well as grain. Today we consider straw a by-product of cereal-farming, the primary purpose being to produce food. But archaeological evidence suggests things started the other way round.[32] Human populations in the Middle East began settling in permanent villages long before cereals became a major component of their diets.[33] In doing so, they found new uses for the stalks of wild grasses; these included fuel for lighting fires, and the temper that transformed mud and clay from so much friable matter into a vital tectonic resource, used to build houses,

ovens, storage bins and other fixed structures. Straw could also be used to make baskets, clothing, matting and thatch. As people intensified the harvesting of wild grasses for straw (either by sickle or simply uprooting), they also produced one of the key conditions for some of these grasses to lose their natural mechanisms of seed dispersal.

Now here's the key point: if crops, rather than humans, had been setting the pace, these two processes would have gone hand in hand, leading to the domestication of large-seeded grasses within a few decades. Wheat would have gained its human handmaidens, and humans would have gained a plant resource that could be efficiently harvested with little loss of seed and that was eminently storable, but that also required much greater outlays of labour in the form of land management and the post-harvesting work of threshing and winnowing (a process which occurs naturally in wild cereals). Within a few human generations, the Faustian pact between people and crops would have been sealed. But here again, the evidence flatly contradicts these expectations.

In fact, the latest research shows that the process of plant domestication in the Fertile Crescent was not fully completed until much later: as much as 3,000 years after the cultivation of wild cereals first began.[34] (Once again, to get a sense of the scale here, think: the time between the putative Trojan War and today.) And while some modern historians may allow themselves the luxury of disposing with 'a few short millennia' here or there, we can hardly extend this attitude to the prehistoric actors whose lives we are trying to understand. At this point, you might reasonably ask what we mean by 'cultivation', and how we can possibly know when it began, if it didn't lead to clear changes in the reproductive behaviour of wild plants? The answers lie in weeds (and in research methods dreamed up in an inventive sub-branch of archaeology, known as 'archaeobotany').

WHY NEOLITHIC FARMING TOOK SO LONG TO EVOLVE, AND DID NOT, AS ROUSSEAU IMAGINED, INVOLVE THE ENCLOSURE OF FIXED FIELDS

Since the early 2000s, archaeobotanists have been studying a phenomenon known as 'pre-domestication cultivation'. Cultivation in general refers to the work done by humans to improve the life chances of favoured crops, whether these be wild or domestic. This usually involves, at minimum, clearing and tilling the soil. Soil preparation induces changes in the size and shape of wild cereal grains, though such changes need not lead to domestication (basically they just get bigger). It also attracts other flora that flourish in disturbed soils, including arable weeds such as clover, fenugreek, gromwell and indeed members of the colourful crowfoot family (genus *Adonis*!), quick to flower and just as quick to die.

Since the 1980s, researchers have accumulated statistical evidence from prehistoric sites in the Middle East, analysing this evidence for changes over time in grain size and proportions of arable weed flora. Samples now number in the many tens of thousands. What they show is that, in certain parts of the region such as northern Syria, the cultivation of wild cereals dates back at least to 10,000 BC.[35] Yet in these same regions, the biological process of crop domestication (including the crucial switch-over from brittle rachis to tough) was not completed until closer to 7000 BC – that is roughly ten times as long as it need have taken – if, that is, humans really had stumbled blindly into the whole process, following the trajectory dictated by changes in their crops.[36] To be clear: that's 3,000 years of human history, far too long to constitute an 'Agricultural Revolution' or even to be considered some kind of transitional state on the road to farming.

To us, with our Platonic prejudices, all this looks like a very long and unnecessary delay, but clearly it was not experienced that way by people in Neolithic times. We need to understand this 3,000-year period as an important phase of human history in its own right. It's a phase marked by foragers moving in and out of cultivation – and as we've seen, there's nothing unusual or anomalous about this flirting and tinkering with the possibilities of farming, in just the ways Plato would have despised – but in no way enslaving themselves to the needs of their crops or herds. So long as it didn't become too onerous, cultivation was just one of many ways in which early settled communities managed their environments. Separating

wild and domestic plant populations need not have been a major concern for them, even if it appears that way to us.[37]

On reflection, this approach makes perfectly good sense. Cultivating domestic cereals, as the 'affluent' foragers of the Pacific Coast knew well, is enormously hard work.[38] Serious farming meant serious soil maintenance and weed clearance. It meant threshing and winnowing after harvest. All these activities would have got in the way of hunting, wild food collection, craft production, marriages and any number of other things, not to mention storytelling, gambling, travelling and organizing masquerades. Indeed, to balance out their dietary needs and labour costs, early cultivators may even have strategically chosen practices that worked against the morphological changes which signal the onset of domestication in plants.[39]

This balancing act involved a special kind of cultivation, which brings us back full circle to Çatalhöyük and its wetland location. Called 'flood retreat', 'flood recession' or *décrue* farming, it takes place on the margins of seasonally flooding lakes or rivers. Flood-retreat farming is a distinctly lackadaisical way to raise crops. The work of soil preparation is given over mostly to nature. Seasonal flooding does the work of tillage, annually sifting and refreshing the soil. As the waters recede they leave behind a fertile bed of alluvial earth, where seed can be broadcast. This was garden cultivation on a small scale with no need for deforestation, weeding or irrigation, except perhaps the construction of small stone or earthen barriers ('bunds') to nudge the distribution of water this way or that. Areas of high groundwater, such as the edges of artesian springs, could also be exploited in this way.[40]

In terms of labour, flood-retreat farming is not only pretty light, it also requires little central management. Critically, such systems have a kind of inbuilt resistance to the enclosure and measurement of land. Any given parcel of territory might be fertile one year, and then either flooded or dried out the next, so there is little incentive for long-term ownership or enclosure of fixed plots. It makes little sense to set up boundary stones when the ground itself is shifting underneath you. No form of human ecology is 'innately' egalitarian, but much as Rousseau and his epigones would have

been surprised to hear it, these early cultivation systems did not lend themselves to the development of private property. If anything, flood-retreat farming was practically oriented towards the collective holding of land, or at least flexible systems of field reallocation.[41]

Flood-retreat farming was an especially important feature of Early Neolithic economies in the more arid, lowland sectors of the Fertile Crescent, and particularly the Levantine Corridor, where important sites often developed on the margins of springs or lakes (e.g. Jericho, Tell Aswad) or on riverbanks (e.g. Abu Hureyra, Jerf el-Ahmar). Because the densest stands of wild grain crops actually lay in upland areas with higher rainfall, the inhabitants of such lowland sites had opportunities to isolate cultivated from wild stock, setting in motion a process of divergence and domestication by gathering grains from the highlands and broadcasting them in lowland, flood-retreat areas. This makes the extremely long timescale of cereal domestication more striking still. Early cultivators, it seems, were doing the minimum amount of subsistence work needed to stay in their given locations, which they occupied for reasons other than farming: hunting, foraging, fishing, trading and more.

ON WOMAN, THE SCIENTIST

Rejecting a Garden of Eden-type narrative for the origins of farming also means rejecting, or at least questioning, the gendered assumptions lurking behind that narrative.[42] Apart from being a story about the loss of primordial innocence, the Book of Genesis is also one of history's most enduring charters for the hatred of women, rivalled only (in the Western tradition) by the prejudices of Greek authors like Hesiod, or for that matter Plato. It is Eve, after all, who proves too weak to resist the exhortations of the crafty serpent and is first to bite the forbidden fruit, because she is the one who desires knowledge and wisdom. Her punishment (and that of all women following her) is to bear children in severe pain and live under the

rule of her husband, whose own destiny is to subsist by the sweat of his brow.

When today's writers speculate about 'wheat domesticating humans' (as opposed to 'humans domesticating wheat'), what they are really doing is replacing a question about concrete scientific (human) achievements with something rather more mystical. In this view, we're not asking questions about who might actually have been doing all the intellectual and practical work of manipulating wild plants: exploring their properties in different soils and water regimes; experimenting with harvesting techniques, accumulating observations about the effects these all have on growth, reproduction and nutrition; debating the social implications. Instead, we find ourselves waxing lyrical about the temptations of forbidden fruits and musing on the unforeseen consequences of adopting a technology (agriculture) that Jared Diamond has characterized – again, with biblical overtones – as 'the worst mistake in the history of the human race'.[43]

Consciously or not, it is the contributions of women that get written out of such accounts. Harvesting wild plants and turning them into food, medicine and complex structures like baskets or clothing is almost everywhere a female activity, and may be gendered female even when practised by men. This is not quite an anthropological universal, but it's about as close to one as you are ever likely to get.[44] Hypothetically, of course, it is possible that things haven't always been so. It's even conceivable that the current situation is really the result of some great global switch-around of gender roles and language structures that took place in the last few thousand years – but one would imagine that such an epochal change would have left other traces, and no one has so much as suggested what such traces might be. True, archaeological evidence of any kind is hard to come by, because aside from charred seeds, very little of what was done culturally with plants survives from prehistoric times. But where evidence exists, it points to strong associations between women and plant-based knowledge as far back as one can trace such things.[45]

By plant-based knowledge we don't just mean new ways of working with wild flora to produce food, spices, medicines, pigments or poisons. We

also mean the development of fibre-based crafts and industries, and the more abstract forms of knowledge these tend to generate about properties of time, space and structure. Textiles, basketry, network, matting and cordage were most likely always developed in parallel with the cultivation of edible plants, which also implies the development of mathematical and geometrical knowledge that is (quite literally) intertwined with the practice of these crafts.[46] Women's association with such knowledge extends back to some of the earliest surviving depictions of the human form: the ubiquitous sculpted female figurines of the last Ice Age with their woven headgear, string skirts and belts made of cord.[47]

There is a peculiar tendency among (male) scholars to skip over the gendered aspects of this kind of knowledge or veil it in abstractions. Consider Claude Lévi-Strauss's famous comments on the 'savage mind', those 'Neolithic scientists' he imagined as having created a parallel route of discovery to modern science, but one that started from concrete interactions with the natural world rather than generalizing laws and theorems. The former method of experimentation proceeds 'from the angle of sensible qualities', and according to Lévi-Strauss it flowered in the Neolithic period, giving us the basis of agriculture, animal husbandry, pottery, weaving, conservation and preparation of food, etc.; while the latter mode of discovery, starting from the definition of formal properties and theories, only came to fruition much more recently, with the advent of modern scientific procedures.[48]

Nowhere in *The Savage Mind* – a book ostensibly dedicated to understanding that other sort of knowledge, the Neolithic 'science of the concrete' – does Lévi-Strauss even mention the possibility that those responsible for its 'flowering' might, very often, have been women.

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If we take these kinds of considerations (instead of some imaginary State of Nature) as our starting point, then entirely different sorts of questions arise about the invention of Neolithic farming. In fact, a whole new language

becomes necessary to describe it, since part of the problem with conventional approaches lies in the very terms ‘agriculture’ and ‘domestication’. Agriculture is essentially about the production of food, which was just one (quite limited) aspect of the Neolithic relationship between people and plants. Domestication usually implies some form of domination or control over the unruly forces of ‘wild nature’. Feminist critiques have already done much to unpack the gendered assumptions behind both concepts, neither of which seems appropriate to describe the ecology of early cultivators.[49]

What if we shifted the emphasis away from agriculture and domestication to, say, botany or even gardening? At once we find ourselves closer to the realities of Neolithic ecology, which seem little concerned with taming wild nature or squeezing as many calories as possible from a handful of seed grasses. What it really seems to have been about is creating garden plots – artificial, often temporary habitats – in which the ecological scales were tipped in favour of preferred species. Those species included plants that modern botanists separate out into competing classes of ‘weeds’, ‘drugs’, ‘herbs’ and ‘food crops’, but which Neolithic botanists (schooled by hands-on experience, not textbooks) preferred to grow side by side.

Instead of fixed fields, they exploited alluvial soils on the margins of lakes and springs, which shifted location from year to year. Instead of hewing wood, tilling fields and carrying water, they found ways of ‘persuading’ nature to do much of this labour for them. Theirs was not a science of domination and classification, but one of bending and coaxing, nurturing and cajoling, or even tricking the forces of nature, to increase the likelihood of securing a favourable outcome.[50] Their ‘laboratory’ was the real world of plants and animals, whose innate tendencies they exploited through close observation and experimentation. This Neolithic mode of cultivation was, moreover, highly successful.

In lowland regions of the Fertile Crescent, such as the Jordan and Euphrates valleys, ecological systems of this kind fostered the incremental growth of settlements and populations for three millennia. Pretending it was all just some kind of very extended transition or rehearsal for the advent of

‘serious’ agriculture is to miss the real point. It’s also to ignore what to many has long seemed an obvious connection between Neolithic ecology and the visibility of women in contemporary art and ritual. Whether one calls these figures ‘goddesses’ or ‘scientists’ is perhaps less important than recognizing how their very appearance signals a new awareness of women’s status, which was surely based on their concrete achievements in binding together these new forms of society.

Part of the difficulty with studying scientific innovation in prehistory is that we have to imagine a world without laboratories; or rather, a world in which laboratories are potentially everywhere and anywhere. Here Lévi-Strauss is much more on the ball:

> …there are two distinct modes of scientific thought. These are certainly not a function of different stages of development of the human mind but rather of two strategic levels at which nature is accessible to scientific enquiry: one roughly adapted to that of perception and the imagination: the other at a remove from it. It is as if the necessary connections which are the object of all science, Neolithic or modern, could be arrived at by two different routes, one very close to, and the other more remote from, sensible intuition.[51]

Lévi-Strauss, as we noted, called the first route to discovery a ‘science of the concrete’. And it’s important to recall that most of humanity’s greatest scientific discoveries – the invention of farming, pottery, weaving, metallurgy, systems of maritime navigation, monumental architecture, the classification and indeed domestication of plants and animals, and so on – were made under precisely those other (Neolithic) sorts of conditions. Judged by its results, then, this concrete approach was undeniably science. But what does ‘science of the concrete’ actually look like, in the archaeological record? How can we hope to see it at work, when so many thousands of years stand between us and the processes of innovation we are trying to understand? The answer here lies precisely in its ‘concreteness’.

Invention in one domain finds echoes and analogies across a whole range of others, which might otherwise seem completely unrelated.

We can see this clearly in Early Neolithic cereal cultivation. Recall that flood-retreat farming required people to establish durable settlements in mud-based environments, like swamps and lake margins. Doing so meant becoming intimate with the properties of soils and clays, carefully observing their fertility under different conditions, but also experimenting with them as tectonic materials, or even as vehicles of abstract thought. As well as supporting new forms of cultivation, soil and clay – mixed with wheat and chaff – became basic materials of construction: essential in building the first permanent houses; used to make ovens, furniture and insulation – almost everything, in fact, except pottery, a later invention in this part of the world.

But clay was also used, in the same times and places, to (literally) model relationships of utterly different kinds, between men and women, people and animals. People started using its plastic qualities to figure out mental problems, making small geometric tokens that many see as direct precursors to later systems of mathematical notation. Archaeologists find these tiny numerical devices in direct association with figurines of herd animals and full-bodied women: the kind of miniatures that stimulate so much modern speculation about Neolithic spirituality, and which find later echoes in myths about the demiurgic, life-giving properties of clay.[52] As we'll soon see, earth and clay even came to redefine relationships between the living and the dead.

Seen this way, the 'origins of farming' start to look less like an economic transition and more like a media revolution, which was also a social revolution, encompassing everything from horticulture to architecture, mathematics to thermodynamics, and from religion to the remodelling of gender roles. And while we can't know exactly who was doing what in this brave new world, it's abundantly clear that women's work and knowledge were central to its creation; that the whole process was a fairly leisurely, even playful one, not forced by any environmental catastrophe or demographic tipping point and unmarked by major violent

conflict. What's more, it was all carried out in ways that made radical inequality an extremely unlikely outcome.

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All this applies most clearly to the development of Early Neolithic societies in lowland parts of the Fertile Crescent, and especially along the valleys of the Jordan and Euphrates Rivers. But these communities did not develop in isolation. For almost the entire period we've been discussing, the upland crescent – following the foothills of the Taurus and Zagros Mountains and the adjoining steppe – was also home to settled populations, adept in managing a variety of wild plant and animal resources. They too were often village dwellers, who adopted strategies of cultivation and herding as they saw fit, while still deriving the bulk of their diet from non-domesticated species. But in other ways they are clearly marked out from their lowland neighbours, their construction of megalithic architecture, including the famous structures of Göbekli Tepe, being just the most obvious. Some of these groups lived in proximity to lowland Neolithic societies, especially along the upper reaches of the Euphrates, but their art and ritual suggest a radically different orientation to the world, as sharply distinguished from the latter as Northwest Coast foragers were from their Californian neighbours.

TO FARM OR NOT TO FARM: IT'S ALL IN YOUR HEAD (WHERE WE RETURN TO GÖBEKLI TEPE)

At the frontier between the upland and lowland sectors of the Fertile Crescent stands Göbekli Tepe itself. It is actually one of a series of megalithic centres that sprang up around the Urfa valley, near the modern border of Syria and Turkey, in the ninth millennium BC.[53] Most are still not excavated. Only the tops of their great T-shaped pillars can be seen projecting from the deep valley soils. While direct evidence is still lacking, this style of stone architecture probably marks the apex of a building

tradition that began in timber. Wooden prototypes may also lie behind Göbekli Tepe's tradition of sculptural art, which evokes a world of fearsome images, far removed from the visual arts of the lowlands, with their humble figurines of women and domestic animals, and hamlets of clay.

In both medium and message, Göbekli Tepe could hardly be more different from the world of early farming communities. Its standing remains were wrought from stone, a material little used for construction in the Euphrates and Jordan valleys. Carved on these stone pillars is an imagery dominated by wild and venomous animals; scavengers and predators, almost exclusively sexed male. On a limestone pillar a lion rears up in high relief, teeth gnashing, claws outstretched, penis and scrotum on show. Elsewhere lurks a malevolent boar, its male sex also displayed. The most often repeated images depict raptors taking human heads. One remarkable sculpture, resembling a totem pole, comprises superimposed pairings of victims and predators: disembodied skulls and sharp-eyed birds of prey. Elsewhere, flesh-eating birds and other carnivores are shown grasping, tossing about or otherwise playing with their catch of human crania; carved below one such figure on a monumental pillar is the image of a headless man with an erect penis (conceivably this depicts the kind of immediate post-mortem erection or 'priapism' that occurs in victims of hanging or beheading as a result of massive trauma to the spinal cord).[54]

What are these images telling us? Could the taking of trophy heads among upland populations of the steppe-forest zone be part of the picture? At the settlement of Nevalı Çori – also in Urfa province, and with similar monuments to Göbekli Tepe – burials with detached skulls were found, including one of a young woman with a flint dagger still lodged under her jaw; while from Jerf el-Ahmar – on the Upper Euphrates, where the lowland crescent approaches the uplands – comes the startling find of a splayed skeleton (again, a young woman) still lying inside a burnt-down building, prone and missing her head.[55] At Göbekli Tepe itself, the chopping of human heads was mimicked in statuary: anthropomorphic sculptures were made, only to have their tops smashed off and the stone heads buried adjacent to pillars within the shrines.[56] For all this,

archaeologists remain rightly cautious about linking such practices to conflict or predation; so far, there is only limited evidence for interpersonal violence, let alone warfare at this time.[57]

Here we might also consider evidence from Çayönü Tepesi, in the Ergani plain. This was the site of a large prehistoric settlement comprising substantial houses built on stone foundations, as well as public buildings. It lay on a tributary of the Tigris in the hill country of Diyarbakır, not far north of Göbekli Tepe, and was established around the same time by a community of hunter-foragers and sometime herders.[58] Near the centre of the settlement stood a long-lived structure that archaeologists call the 'House of Skulls', for the simple reason that it was found to hold the remains of over 450 people, including headless corpses and over ninety crania, all crammed into small compartments. Cervical vertebrae were attached to some skulls, indicating they were severed from fleshed (but not necessarily living) bodies. Most of the heads were taken from young adults or adolescents, individuals in the prime of life, and ten from children. If any of these were trophy skulls, claimed from victims or enemies, then they were chosen for their vitality. The skulls were left bare, with no trace of decoration.[59]

Human remains in the House of Skulls were stored together with those of large prey animals, and a wild cattle skull was mounted on an outside wall. In its later stages of use, the building was furnished with a polished stone table, erected near the entrance in an open plaza that could have hosted large gatherings. Studies of blood residues from the surface, and from associated objects, led researchers to identify this as an altar on which public sacrifice and processing of bodies took place, the victims both animal and human. Whether or not the detail of this reconstruction is correct, the association of vanquished animals and human remains is suggestive. The House of Skulls met its end in a violent conflagration, after which the people of Çayönü covered the whole complex under a deep blanket of pebbles and soil.

Perhaps what we're detecting in the House of Skulls, but in a rather different form, is a complex of ideas already familiar from Amazonia and elsewhere: hunting as predation, shifting subtly from a mode of subsistence

to a way of modelling and enacting dominance over other human beings. After all, even feudal lords in Europe tended to identify themselves with lions, hawks and predatory beasts (they were also fond of the symbolism of putting heads on poles; 'off with his head!' is still the most popular phrase identified with the British monarchy).[60] But what about Göbekli Tepe itself? If the display of trophy heads really was an important aspect of the site's function, surely some direct trace would remain, other than just some suggestive stone carvings.

Human remains are so far rare at Göbekli Tepe. Which makes it even more remarkable that – of the few hundred scraps of prehistoric human bone so far recovered from the site – some two-thirds are indeed segments of skulls or facial bones, some retaining signs of de-fleshing, and even decapitation. Among them were found remnants of three skulls, recovered from the area of the stone shrines, which bear evidence for more elaborate types of cultural modification in the form of deep incisions and drill-holes, allowing the skull to dangle from a string or be mounted on a pole.[61]

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In earlier chapters, we've explored why farming was much less of a rupture in human affairs than we tend to assume. Now we're finally in a position to bring the various strands of this chapter together and say something about why this matters. Let's recap.

Neolithic farming began in Southwest Asia as a series of local specializations in crop-raising and animal-herding, scattered across various parts of the region, with no epicentre. These local strategies were pursued, it seems, in order to sustain access to trade partnerships and optimal locations for hunting and gathering, which continued unabated alongside cultivation. As we discussed back in Chapter One, this 'trade' might well have had more to do with sociability, romance or adventure than material advantage as we'd normally conceive it.

Still, whatever the reasons, over thousands of years such local innovations – everything from non-shattering wheat to docile sheep – were exchanged

between villages, producing a degree of uniformity among a coalition of societies across the Middle East. A standard ‘package’ of mixed farming emerged, from the Iranian Zagros to the eastern shores of the Mediterranean, and then spread beyond it, albeit, as we’ll see, with very mixed success.

But from its earliest beginnings, farming was much more than a new economy. It also saw the creation of patterns of life and ritual that remain doggedly with us millennia later, and have since become fixtures of social existence among a broad sector of humanity: everything from harvest festivals to habits of sitting on benches, putting cheese on bread, entering and exiting via doorways, or looking at the world through windows. Originally, as we’ve seen, much of this Neolithic lifestyle developed alongside an alternative cultural pattern in the steppe and upland zones of the Fertile Crescent, most clearly distinguished by the building of grand monuments in stone, and by a symbolism of male virility and predation that largely excluded female concerns. By contrast, the art and ritual of lowland settlements in the Euphrates and Jordan valleys presents women as co-creators of a distinct form of society – learned through the productive routines of cultivation, herding and village life – and celebrated by modelling and binding soft materials, such as clay or fibres, into symbolic forms.[62]

Of course, we could put these cultural oppositions down to coincidence, or perhaps even environmental factors. But considering the close proximity of the two cultural patterns, and how the groups responsible for them exchanged goods and were keenly aware of each other’s existence, it is equally possible, and perhaps more plausible, to see what happened as the result of mutual and self-conscious differentiation, or schismogenesis, akin to what we traced in the last chapter among the recent foraging societies of America’s West Coast. The more that uplanders came to organize their artistic and ceremonial lives around the theme of predatory male violence, the more lowlanders tended to organize theirs around female knowledge and symbolism – and vice versa. With no written sources to guide us, the clearest evidence we can find for such mutual oppositions is when things

get (quite literally, in our case) turned on their head, as when one group of people seems to make a great display of going against some highly characteristic behaviour of their neighbours.

Such evidence is not at all hard to find, since lowland villagers, like their upland neighbours, also attached great ritual significance to human heads, but chose to treat them in ways that would have been utterly foreign to the uplanders. Let us briefly illustrate what we mean.

Perhaps the most recognizable – and definitely the most macabre – objects found in Early Neolithic villages of the Levantine Corridor (Israel, Palestine, Jordan, Lebanon and the Syrian Euphrates) are 'skull portraits'. These are heads that were removed from burials of women, men and occasionally children in a secondary process, after the corpse had decomposed. Once separated from the body, they were cleaned and carefully modelled over with clay, then coated with layers of plaster to become something altogether different. Shells were often fixed into the eye sockets, just as clay and plaster filled in for the flesh and skin. Red and white paint added further life. Skull portraits appear to have been treasured heirlooms, carefully stored and repaired over generations. They reached their height of popularity in the eighth millennium BC, as Göbekli Tepe fell into decline, when the practice spread as far as Çatalhöyük; there, one such modelled head was found in an intimate situation, clutched to the chest of a female burial.[63]

Ever since these intriguing objects first came to light at Jericho in the early twentieth century, archaeologists have puzzled over their meaning. Many scholars see them as expressions of care and reverence for ancestors. But there are literally countless ways one might show respect or grief for ancestors without systematically removing crania from their places of rest and modelling life into them by adding layers of clay, plaster, shell, fibre and pigment. Even in the lowland parts of the Fertile Crescent, this treatment was reserved for a minority of individuals. More often, human crania removed from burials were left bare, while others had complex histories as ritual objects, such as a group of skulls from Tell Qarassa in

southern Syria, found to have been deliberately mutilated around the face in what appears to have been an act of post-mortem desecration.[64]

In the Jordan and Euphrates valleys and adjacent coastlands, the practice of curating human crania has an even longer history, extending back to Natufian hunter-gatherers, before the onset of the Neolithic period; but longevity need not imply an entirely local context for later ritual innovations, such as the addition of decorative materials to make skull portraits. Perhaps making skull portraits in this particular way was not just about reconnecting with the dead, but also negating the logic of stripping, cutting, piercing and accumulating heads as trophies. At the very least, it offers a further indication that lowland and upland populations in the Fertile Crescent were following quite different – and in some ways, mutually opposed – cultural trajectories throughout the centuries when plants and animals were first domesticated.[65]

ON SEMANTIC SNARES AND METAPHYSICAL MIRAGES

Back in the 1970s, a brilliant Cambridge archaeologist called David Clarke predicted that, with modern research, almost every aspect of the old edifice of human evolution, 'the explanations of the development of modern man, domestication, metallurgy, urbanization and civilization – may in perspective emerge as semantic snares and metaphysical mirages.'[66] It is beginning to seem like he was right.

Let's recap a little further. A founding block in that old edifice of human social evolution was the allocation of a specific place in history to foraging societies, which was to be the prelude to an 'Agricultural Revolution' that supposedly changed everything about the course of history. The job of foragers in this conventional narrative is to be all that farming is not (and thus also to explain, by implication, what farming is). If farmers are sedentary, foragers must be mobile; if farmers actively produce food, foragers must merely collect it; if farmers have private property, foragers must renounce it; and if farming societies are unequal, this is by contrast

with the ‘innate’ egalitarianism of foragers. Finally, if a particular group of foragers should happen to possess any such features in common with farmers, the dominant narrative demands that these can only be ‘incipient’, ‘emergent’ or ‘deviant’ in nature, so that the destiny of foragers is either to ‘evolve’ into farmers, or eventually to wither and die.

It will by now be increasingly obvious to any reader that almost nothing about this established narrative matches the available evidence. In the Fertile Crescent of the Middle East, long regarded as the cradle of the ‘Agricultural Revolution’, there was in fact no ‘switch’ from Palaeolithic forager to Neolithic farmer. The transition from living mainly on wild resources to a life based on food production took something in the order of 3,000 years. And while agriculture allowed for the *possibility* of more unequal concentrations of wealth, in most cases this only began to happen millennia after its inception. In the centuries between, people were effectively trying farming on for size, ‘play farming’ if you will, switching between modes of production, much as they switched their social structures back and forth.

Clearly, it no longer makes any sense to use phrases like ‘the Agricultural Revolution’ when dealing with processes of such inordinate length and complexity. And since there was no Eden-like state from which the first farmers could take their first steps on the road to inequality, it makes even less sense to talk about agriculture as marking the origins of social rank, inequality or private property. In the Fertile Crescent, it is – if anything – among upland groups, furthest removed from a dependence on agriculture, that we find stratification and violence becoming entrenched; while their lowland counterparts, who linked the production of crops to important social rituals, come out looking decidedly more egalitarian; and much of this egalitarianism relates to an increase in the economic and social visibility of women, reflected in their art and ritual. In that sense, the work of Gimbutas – while painted with brush strokes that were broad, sometimes to the point of caricature – was not entirely wide of the mark.

All this raises an obvious question: if the adoption of farming actually set humanity, or some small part of it, on a course *away* from violent

domination, what went wrong?

7

The Ecology of Freedom

How farming first hopped, stumbled and bluffed its way around the world

In a way, the Fertile Crescent of the Middle East is unusual precisely because we know so much about what happened there. Long recognized as a crucible of plant and animal domestication, it has been more intensively studied by archaeologists than almost any other region outside Europe. This accumulation of evidence allows us to begin to tease out some of the social changes that accompanied the first steps to crop and animal domestication, even to rely to a certain extent on negative evidence. It is difficult, for instance, to make any sort of convincing argument that warfare was a significant feature of early farming societies in the Middle East, as by now one would expect some evidence for it to have shown up in the record. On the other hand, there is abundant evidence for the proliferation of trade and specialized crafts, and for the importance of female figures in art and ritual.

For the same reasons, we're able to draw comparisons between the lowland part of the Fertile Crescent (especially the Levantine Corridor passing via the Jordan valley) and its upland sector (the plains and foothills of eastern Turkey), where equally precocious developments in village life and local industries were associated with the raising of stone monuments adorned with masculine symbolism and an imagery of predatory violence.[1] Some scholars have tried to see all these developments as somehow part of a single process, heading in the same general direction, towards the 'birth of agriculture'. But the first farmers were reluctant farmers who seem to have understood the logistical implications of agriculture and avoided any major commitment to it. Their upland neighbours, also living settled lives in areas with diverse wild resources, had even less incentive to tie their existence to a narrow range of crops and livestock.

If the situation in just one cradle of early farming was that complicated, then surely it no longer makes sense to ask, 'what were the social implications of the transition to farming?' – as if there was necessarily just one transition, and one set of implications. Certainly, it's wrong to assume that planting seeds or tending sheep means one is *necessarily* obliged to accept more unequal social arrangements, simply to avert a 'tragedy of the commons'. There is a paradox here. Most general works on the course of human history do actually assume something like this; but almost nobody, if pressed, would seriously defend such a point because it's an obvious straw man. Any student of agrarian societies knows that people inclined to expand agriculture sustainably, without privatizing land or surrendering its management to a class of overseers, have always found ways to do so.

Communal tenure, 'open-field' principles, periodic redistribution of plots and co-operative management of pasture are not particularly exceptional and were often practised for centuries in the same locations.[2] The Russian *mir* is a famous example, but similar systems of land redistribution once existed all over Europe, from the Highlands of Scotland to the Balkans, occasionally into very recent times. The Anglo-Saxon term was *run-rig* or *rundale.* Of course, the rules of redistribution varied from one case to the next – in some, it was made *per stirpes*, in others according to the number of people in a family. Most often, the precise location of each strip was determined by lottery, with each family receiving one strip per land tract of differing quality, so that nobody was obliged to travel much further than anyone else to his fields or to work soil of consistently lower quality.[3]

Of course, it wasn't just in Europe that such things happened. In his 1875 *Lectures on the Early History of Institutions*, Henry Sumner Maine – who held the first chair of historical and comparative jurisprudence at Oxford – was already discussing cases of periodic land redistribution and *rundale*-type institutions from India to Ireland, noting that almost up until his own day, 'cases were frequent in which the arable land was divided into farms which shifted among the tenant-families periodically, and sometimes annually.' And that in pre-industrial Germany, where land tenure was

apportioned between ‘mark associations’, each tenant would receive lots divided among the three main qualities of soil. Importantly, he notes, these were not so much forms of property as ‘modes of occupation’, not unlike the rights of access found in many forager groups.[4] We could go on piling up the examples (the Palestinian *mash’a* system, for instance, or Balinese *subak*).[5]

In short, there is simply no reason to assume that the adoption of agriculture in more remote periods also meant the inception of private land ownership, territoriality, or an irreversible departure from forager egalitarianism. It may have happened that way sometimes, but this can no longer be treated as a default assumption. As we saw in the last chapter, exactly the opposite seems true in the Fertile Crescent of the Middle East, at least for the first few thousand years after the appearance of farming. If the situation in just one cradle of early farming was so different from our evolutionary expectations, then we can only wonder what other stories remain to be told, in other places where farming emerged. Indeed, these other locations are multiplying in light of new evidence, genetic and botanical, as well as archaeological. It turns out the process was far messier, and far less unidirectional, than anyone had guessed; and so we have to consider a broader range of possibilities than once assumed. In this chapter, we’ll show just how much the picture is changing and point towards some of the surprising new patterns that are starting to emerge.

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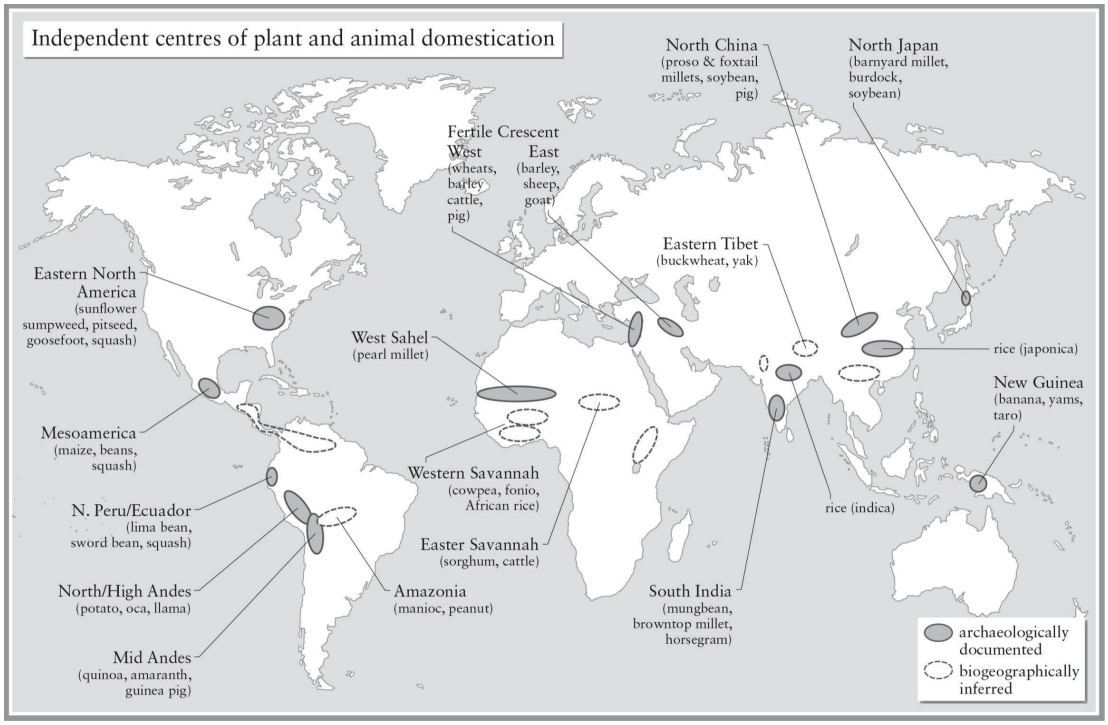
Geographers and historians used to believe that plants and animals were first domesticated in just a few ‘nuclear’ zones: the same areas in which large-scale, politically centralized societies later appeared. In the Middle East there was wheat and barley, as well as sheep, goats, pigs and cattle; in China there was rice (*japonica*), soybeans and a different variety of pig; potatoes, quinoa and llamas were brought under domestication in the Peruvian Andes; and maize, avocado and chilli in Mesoamerica. Such neat geographical alignments between early centres of crop domestication and

the rise of centralized states invited speculation that the former led to the latter: that food production was responsible for the emergence of cities, writing, and centralized political organization, providing a surplus of calories to support large populations and elite classes of administrators, warriors and politicians. Invent agriculture – or so the story once went – and you set yourself on a course that will eventually lead to Assyrian charioteers, Confucian bureaucrats, Inca sun-kings or Aztec priests carrying away a significant chunk of your grain. Domination – and most often violent, ugly domination – was sure to follow; it was just a matter of time.

Archaeological science has changed all this. Experts now identify between fifteen and twenty independent centres of domestication, many of which followed very different paths of development to China, Peru, Mesoamerica or Mesopotamia (which themselves all followed quite different paths, as we'll see in later chapters). To those centres of early farming must now be added, among others, the Indian subcontinent (where browntop millet, mungbeans, horse gram, *indica* rice and humped zebu cattle were domesticated); the grasslands of West Africa (pearl millet); the central highlands of New Guinea (bananas, taroes and yams); the tropical forests of South America (manioc and peanuts); and the Eastern Woodlands of North America, where a distinct suite of local seed crops – goosefoot, sunflower and sumpweed – was raised, long before the introduction of maize from Mesoamerica.[6]

We know much less about the prehistory of these other regions than we do about the Fertile Crescent. None followed a linear trajectory from food production to state formation. Nor is there any reason to assume a rapid spread of farming beyond them to neighbouring areas. Food production did not always present itself to foragers, fishers and hunters as an obviously beneficial thing. Historians painting with a broad brush sometimes write as if it did, or as if the only barriers to the 'spread of farming' were natural ones, such as climate and topography. This sets up something of a paradox, because even foragers living in highly suitable environments, and clearly aware of the possibilities of cereal-farming, often chose not to adopt it. Take Jared Diamond:

Just as some regions proved much more suitable than others for origins of food production, the ease of its spread also varied greatly around the world. Some areas that are ecologically very suitable for food production never acquired it in prehistoric times at all, even though areas of prehistoric food production existed nearby. The most conspicuous such Independent centres of plant and animal domestication examples are the failure of both farming and herding to reach Native American California from the U.S. Southwest or to reach Australia from New Guinea and Indonesia, and the failure of farming to spread from South Africa's Natal Province to South Africa's Cape.[7]



As we saw in Chapter Five, the failure of farming to 'reach' California is not a particularly compelling way to frame the problem. This is just an updated version of the old diffusionist approach, which identifies culture traits (cat's cradles, musical instruments, agriculture and so on) and maps out how they migrate across the globe, and why in some places they fail to do so. In reality, there's every reason to believe that farming 'reached'

California just as soon as it reached anywhere else in North America. It's just that (despite a work ethic that valorized strenuous labour, and a regional exchange system that would have allowed information about innovations to spread rapidly) people there rejected the practice as definitively as they did slavery.

Even in the American Southwest, the overall trend for 500 years or so before Europeans arrived was the gradual abandonment of maize and beans, which people had been growing in some cases for thousands of years, and a return to a foraging way of life. If anything, during this period Californians were the ones doing the spreading, with populations originally from the east of the state bringing new foraging techniques, and replacing previously agricultural peoples, as far away as Utah and Wyoming. By the time Spaniards arrived in the Southwest, the Pueblo societies which had once dominated the region were reduced to isolated pockets of farmers, entirely surrounded by hunter-gatherers.[8]

ON SOME ISSUES OF TERMINOLOGY WHEN DISCUSSING THE MOVEMENT OF DOMESTIC CROPS AND ANIMALS AROUND THE GLOBE

In books on world history, you often encounter phrases like 'crops and livestock spread rapidly through Eurasia', or 'the plant package of the Fertile Crescent launched food production from Ireland to the Indus', or 'maize diffused northwards at a snail's pace.' How appropriate is such language when describing the expansion of Neolithic economies many thousands of years ago?

If anything, it seems to reflect the experience of the last few centuries, when Old World domesticates did indeed conquer the environments of the Americas and Oceania. In those more recent times, crops and livestock were able to 'spread' like wildfire, transforming existing habitats in ways that often rendered them unrecognizable within a few generations. But this has less to do with the nature of seed cultivation itself than with imperial

and commercial expansion: seeds can spread very quickly if those carrying them have an army and are driven by the need endlessly to expand their enterprises to maintain profits. The Neolithic situation was altogether different. Especially for the first several thousand years after the end of the last Ice Age, most people were still not farmers, and farmers' crops had to compete with a whole panoply of wild predators and parasites, most of which have since been eliminated from agricultural landscapes.

To begin with, domestic plants and animals could not 'spread' beyond their original ecological limits without significant effort on the part of their human planters and keepers. Suitable environments not only had to be found but also modified by weeding, manuring, terracing, and so on. The landscape modifications involved may seem small-scale – little more than ecological tinkering – to our eyes, but they were onerous enough by local standards, and crucial in extending the range of domestic species.[9] Of course, there were always paths of least resistance, topographical features and climatic regimes conducive or less conducive to the Neolithic economy. The east-west axis of Eurasia discussed by Jared Diamond in his *Guns, Germs and Steel* (1997) or the 'lucky latitudes' of Ian Morris's *Why the West Rules – For Now* (2010) are ecological corridors of this sort.

Eurasia, as these authors point out, has few equivalents to the sharp climatic variations of the Americas, or indeed of Africa. Terrestrial species can travel across the breadth of the Eurasian continent without crossing boundaries between tropical and temperate zones. Continents whose extremities tilt north to south are a different proposition, and perhaps less amenable to such ecological transfers. The basic geographical point is surely sound, at least for the last 10,000 years of history. It explains why cereals of Fertile Crescent origin are successfully grown today in such distant locations as Ireland and Japan. It may also explain, to some extent, why many thousands of years elapsed before American crops – such as maize or squash (first domesticated in the tropics) – were accepted in the temperate northern part of the American continent, by contrast with the relatively rapid adoption of Eurasian crops outside their areas of origin.

To what extent can such observations help to make sense of human history on a larger scale? How far can geography go in explaining history, rather than simply informing it?

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Back in the 1970s and 1980s, a geographer called Alfred W. Crosby came up with a number of important theories about how ecology shaped the course of history. Among other things, he was the first to draw attention to the 'Columbian exchange', the remarkable crossover of non-human species set in motion by Europeans' arrival in the Americas after 1492, and its transformative effect on the global configuration of culture, economy and cuisine. Tobacco, peppers, potatoes and turkeys flowed into Eurasia; maize, rubber and chickens entered Africa; and citrus fruits, coffee, horses, donkeys and livestock travelled to the Americas. Crosby went on to argue that the global ascendance of European economies since the sixteenth century could be accounted for by a process he called 'ecological imperialism'.[10]

The temperate zones of North America and Oceania, as Crosby pointed out, were ideally suited to Eurasian crops and livestock; not only because of their climate, but because they possessed few native competitors and no local parasites, such as the various funguses, insects or field mice that have developed to specialize in sharing human-grown wheat. Unleashed on such fresh environments, Old World domesticates went into reproductive overdrive, even going feral again in some cases. Outgrowing and out-grazing local flora and fauna, they began to turn native ecosystems on their heads, creating 'Neo-Europes' – carbon copies of European environments, of the sort one sees today when driving through the countryside of New Zealand's North Island, for example; or much of New England. The ecological assault on native habitats also included infectious diseases, such as smallpox and measles, which originated in Old World environments where humans and cattle cohabited. While European plants thrived in the absence of pests, diseases brought with domestic animals (or by humans

accustomed to living alongside them) wreaked havoc on indigenous populations, creating casualty rates as high as 95 per cent, even in places where settlers were not enslaving or actively massacring the indigenous population – which, of course, they often were.

Viewed in this light, the success of modern European imperialism owed more to 'the Old World Neolithic Revolution' – with its roots in the Fertile Crescent – than to the specific achievements of Columbus, Magellan, Cook and all the rest. And in a sense this is true. But the story of agricultural expansion *before* the sixteenth century is very far from being a one-way street; in fact, it is full of false starts, hiccups and reversals. This becomes truer the further back we go in time. To appreciate why, we will have to look beyond the Middle East to consider how the earliest farming populations fared in some other parts of the world after the end of the last Ice Age. But first there is a more basic point to address: why is our discussion of these issues confined only to the last 10,000 or so years of human history? Given that humans have been around for upwards of 200,000 years, why didn't farming develop much earlier?

WHY AGRICULTURE DID NOT DEVELOP SOONER

Since our species came into existence, there have been only two sustained periods of warm climate of the kind that might support an agricultural economy for long enough to leave some trace in the archaeological record.[11] The first was the Eemian interglacial, which took place around 130,000 years ago. Global temperatures stabilized at slightly above their present-day levels, sustaining the spread of boreal forests as far north as Alaska and Finland. Hippos basked on the banks of the Thames and the Rhine. But the impact on human populations was limited by our then restricted geographical range. The second is the one we are living in now. When it began, around 12,000 years ago, people were already present on all the world's continents, and in many different kinds of environment.

Geologists call this period the Holocene, from Greek *holos* (entire), *kainos* (new).

Many earth scientists now consider the Holocene over and done. For at least the last two centuries we have been entering a new geological epoch, the Anthropocene, in which for the first time in history human activities are the main drivers of global climate change. Where exactly the Anthropocene begins is a scientific bone of contention. Most experts point to the Industrial Revolution, but some put its origins earlier, in the late 1500s and early 1600s. At that time, a global drop in surface air temperatures occurred – part of the 'Little Ice Age' – which natural forces can't explain. Quite likely, European expansion in the Americas played a role. With perhaps 90 per cent of the indigenous population eliminated by the effects of conquest and infectious disease, forests reclaimed regions in which terraced agriculture and irrigation had been practised for centuries. In Mesoamerica, Amazonia and the Andes, some 50 million hectares of cultivated land may have reverted to wilderness. Carbon uptake from vegetation increased on a scale sufficient to change the Earth System and bring about a human-driven phase of global cooling.[12]

Wherever one starts it, the Anthropocene is what we have done with the legacy of a Holocene Age, which in some ways had been a 'clean sheet' for humanity. At its onset, many things really were new. As the ice receded, flora and fauna – once confined to small refuge zones – spread out to new vistas. People followed, helping favoured species on their way by setting fires and clearing land. The effect of global warming on the world's shorelines was more complex, as coastal shelves formerly under ice sprang back to the surface, while others sank below rising seawaters, fed from glacial melt.[13] For many historians, the onset of the Holocene is significant because it created conditions for the origins of agriculture. Yet in many parts of the world, as we've already seen, it was also a Golden Age for foragers, and it's important to remember that this forager paradise was the context in which the first farmers set up shop.

The most vigorous expansion of foraging populations was in coastal environments, freshly exposed by glacial retreat. Such locations offered a

bonanza of wild resources. Saltwater fish and sea birds, whales and dolphins, seals and otters, crabs, shrimps, oysters, periwinkles and more besides. Freshwater rivers and lagoons, fed by mountain glaciers, now teemed with pike and bream, attracting migratory waterfowl. Around estuaries, deltas and lake margins, annual rounds of fishing and foraging took place at increasingly close range, leading to sustained patterns of human aggregation quite unlike those of the glacial period, when long seasonal migrations of mammoth and other large game structured much of social life.[14]

Scrub and forest replaced open steppe and tundra across much of this postglacial world. As in earlier times, foragers used various techniques of land management to stimulate the growth of desired species, such as fruit and nut-bearing trees. By 8000 BC, their efforts had contributed to the extinction of roughly two-thirds of the world's megafauna, which were ill suited to the warmer and more enclosed habitats of the Holocene.[15] Expanding woodlands offered a superabundance of nutritious and storable foods: wild nuts, berries, fruits, leaves and fungi, processed with a new suite of composite ('micro-lithic') tools. Where forest took over from steppe, human hunting techniques shifted from the seasonal co-ordination of mass kills to more opportunistic and versatile strategies, focused on smaller mammals with more limited home ranges, among them elk, deer, boar and wild cattle.[16]

What is easy to forget, with hindsight, is that farmers entered into this whole new world very much as the cultural underdogs. Their earliest expansions were about as far removed as one could imagine from the *missions civilisatrices* of modern agrarian empires. Mostly, as we'll see, they filled in the territorial gaps left behind by foragers: geographical spaces either too remote, inaccessible or simply undesirable to attract the sustained attention of hunters, fishers and gatherers. Even in such locations, these outlier economies of the Holocene would have decidedly mixed fortunes. Nowhere is this more dramatically illustrated than in the Early Neolithic period of central Europe, where farming endured one of its first and most conspicuous failures. To better understand the reasons why this

failure occurred, we will then consider some more successful expansions of early farming populations in Africa, Oceania and the tropical lowlands of South America.

Historically speaking, there is no direct connection among these cases; but what they show, collectively, is how the fate of early farming societies often hinged less on 'ecological imperialism' than on what we might call – to adapt a phrase from the pioneer of social ecology, Murray Bookchin – an 'ecology of freedom'.[17] By this we mean something quite specific. If peasants are people 'existentially involved in cultivation',[18] then the ecology of freedom ('play farming', in short) is precisely the opposite condition. The ecology of freedom describes the proclivity of human societies to move (freely) in and out of farming; to farm without fully becoming farmers; raise crops and animals without surrendering too much of one's existence to the logistical rigours of agriculture; and retain a food web sufficiently broad as to prevent cultivation from becoming a matter of life and death. It is just this sort of ecological flexibility that tends to be excluded from conventional narratives of world history, which present the planting of a single seed as a point of no return.

Moving freely in and out of farming in this way, or hovering on its threshold, turns out to be something our species has done successfully for a large part of its past.[19] Such fluid ecological arrangements – combining garden cultivation, flood-retreat farming on the margins of lakes or springs, small-scale landscape management (e.g. by burning, pruning and terracing) and the corralling or keeping of animals in semi-wild states, combined with a spectrum of hunting, fishing and collecting activities – were once typical of human societies in many parts of the world. Often these activities were sustained for thousands of years, and not infrequently supported large populations. As we'll see, they may also have been crucial to the survival of those first human populations to incorporate domesticated plants and animals. Biodiversity – not bio-power – was the initial key to the growth of Neolithic food production.

IN WHICH WE CONSIDER A NEOLITHIC CAUTIONARY TALE: THE GRISLY AND SURPRISING FATE OF CENTRAL EUROPE'S FIRST FARMERS

Kilianstädten, Talheim, Schletz and Herxheim are all names of Early Neolithic sites on the loess plains of Austria and Germany. Collectively, they tell a very unfamiliar story of early agriculture.

In these places, starting around 5500 BC, villages of a similar cultural outlook – known as the 'Linear Pottery' tradition – were established. They are among the villages of central Europe's first farmers. But, unlike most other early farming settlements, each ended its life in a period of turmoil, marked by the digging and filling of mass graves. The contents of these graves attest to the annihilation, or attempted annihilation, of an entire community: crudely dug trenches or reused ditches containing chaotic jumbles of human remains, including adults and children of both sexes, disposed of like so much refuse. Their bones show the telltale marks of torture, mutilation and violent death – the breaking of limbs, taking of scalps, butchering for cannibalism. At Kilianstädten and Asparn, younger women were missing from the assemblage, suggesting their appropriation as captives.[20]

The Neolithic farming economy had arrived in central Europe, carried by migrants from the southeast, and with ultimately catastrophic consequences for some of those whose ancestors brought it there.[21] The earliest settlements of these newcomers to the central European plains suggest a relatively free society, with few indicators of status difference either within or between communities. Their basic family units – timber longhouses – were all approximately the same size; but around 5000 BC, disparities began to appear between them, as also in the kind of goods placed with their dead. People enclosed their settlements within large ditches, which yield evidence of warfare in the forms of arrows, axe heads and human remains. In some cases, when the sites were overrun, these ditches were turned into mass graves for the residents they had failed to defend.[22]

Such is the quality and quantity of accurately dated material that researchers are able to model demographic trends accompanying these changes. Their reconstructions have come as something of a surprise. The arrival of farming in central Europe was associated with an initial and quite massive upsurge in population – which is of course exactly what one would expect. But what followed was not the anticipated 'up and up' pattern of demographic growth. Instead came a disastrous downturn, a boom and bust, between 5000 and 4500 BC, and something approaching a regional collapse.[23] These Early Neolithic groups arrived, they settled, and then in many (but, we should emphasize, not all) areas their numbers dwindled into obscurity, while in others they were bolstered through intermarriage with more established forager populations. Only after a hiatus of roughly 1,000 years did extensive cereal-farming take off again in central and northern Europe.[24]

Older narratives of prehistory tended simply to assume that Neolithic colonists held the upper hand over native foraging populations, demographically and socially; that they either replaced them, or converted them to a superior way of life through trade and intermarriage. The boom-and-bust pattern of early farming now documented in temperate Europe contradicts this picture and raises wider questions about the viability of Neolithic economies in a world of foragers. To address these questions, we need to know a bit more about the foraging populations themselves, and how they developed their Pleistocene traditions after the Ice Age and into the Holocene.

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Much of what we know about postglacial (Mesolithic) forager populations in Europe derives from findings along the Baltic and Atlantic coasts. Much more is lost to the sea. We learn a great deal about these Holocene hunter-foragers from their funerary customs. From northern Russia through Scandinavia, and down to the Breton coast, they are illuminated by finds of prehistoric cemeteries. Quite often, the burials were richly adorned. In the

Baltic and Iberian regions they include copious amounts of amber. Corpses lie in striking postures – sitting or leaning, even flipped on their heads – suggesting complex and now largely unfathomable codes of hierarchy. On the fringes of northern Eurasia, peat bogs and waterlogged sites preserve glimpses of a wood-carving tradition that produced decorated ski runners, sledges, canoes and monuments resembling the totem poles of the Pacific Northwest Coast.[25] Staffs topped with elk and reindeer effigies, reminiscent of Pleistocene rock art depictions, appear over broad areas: a stable symbolism of authority, crossing the boundaries of local foraging groups.[26]

How did Europe's deep interior, where incoming farmers settled, look from the vantage point of these established Mesolithic populations? Most probably like an ecological dead end, lacking the obvious advantages of coastal environments. It may have been precisely this that allowed Linear Pottery colonists to spread freely west and north on the loess plains to begin with: they were moving into areas with little or no prior occupation. Whether that reflects a conscious policy of avoiding local foragers is unclear. What's clearer is that this wave of advance began to break as the new farming groups approached more densely populated coastlands. What exactly this might have meant in practice is often ambiguous. For example, human remains of coastal foragers, found on Mesolithic sites in Brittany, show anomalous levels of terrestrial protein in the diet of many young females, contrasting with the general prevalence of marine foods among the rest of the population. It seems that women of inland origin (who until then had been eating largely meat, not fish) were joining coastal groups.[27]

What does this tell us? It may indicate that women had been captured and transported in raids, conceivably including raids by foragers on farming communities.[28] This can only be speculative; we cannot know for sure that women moved involuntarily, or even that they moved at the behest of men. And while raiding and warfare were clearly part of the picture, it would be simplistic to attribute the initial failure of Neolithic farming in Europe to such factors alone. We'll consider some broader explanations in due course. First, though, we should take a reprieve from Europe and examine some of

the success stories of early farming. We will start with Africa, then move on to Oceania, and lastly the rather different but instructive case of Amazonia.

SOME VERY DIFFERENT PLACES WHERE NEOLITHIC FARMING FOUND ITS FEET: THE TRANSFORMATION OF THE NILE VALLEY (*c* .5000–4000 BC) AND THE COLONIZATION OF ISLAND OCEANIA (*c* .1600–500 BC)

Around the time that Linear Pottery settlements were established in central Europe, the Neolithic farming economy made its first appearance in Africa. The African variant had the same ultimate origin, in Southwest Asia. It comprised the same basic suite of crops (emmer wheat and einkorn) and animals (domestic sheep, goats and cattle – with perhaps some admixture of local African aurochs). Yet the African reception of this Neolithic 'package' could not have been more different. It is almost as if the first African farmers opened up the package, threw out some of the contents, then rewrapped it in such strikingly distinct ways that one could easily mistake it for a completely local invention. As, in many ways, it was.

The place where much of this happened was a region largely ignored by foragers until then, but soon to become a major axis of demographic and political change: the Nile valley of Egypt and Sudan. By 3000 BC, the political integration of its lower reaches with the Nile delta would produce the first territorial kingdom of ancient Egypt, facing the Mediterranean. However, the cultural roots of this and all later Nilotic civilizations lay in much earlier transformations, linked to the adoption of farming between 5000 and 4000 BC, with their centre of gravity more firmly in Africa. These first African farmers reinvented the Neolithic in their own image. Cereal cultivation was relegated to a minor pursuit (regaining its status only centuries later), and the idea that one's social identity was represented by hearth and home was largely thrown out too. In their place came a quite different Neolithic: supple, vibrant and travelling on the hoof.[29]

This new form of Neolithic economy relied heavily on livestock-herding, combined with annual rounds of fishing, hunting and foraging on the rich floodplain of the Nile, and in the oases and seasonal streams (*wadis*) of what are now the neighbouring deserts, which were then still watered by annual rains. Herders moved periodically in and out of this 'Green Sahara', both west and east to the Red Sea coast. Complex systems of bodily display developed. New forms of personal adornment employed cosmetic pigments and minerals, prospected from the adjacent deserts, and a dazzling array of beadwork, combs, bangles and other ornaments made of ivory and bone, all richly attested in Neolithic cemeteries running the length of the Nile valley, from Central Sudan to Middle Egypt.[30]

What survives today of this amazing gear now graces the shelves of museum displays the world over, reminding us that – before there were pharaohs – almost anyone could hope to be buried like a king, queen, prince or princess.

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Another of the world's great Neolithic expansions took place in island Oceania. Its origins lay at the other end of Asia, in the rice- and millet-growing cultures of Taiwan and the Philippines (the deeper roots are in China). Around 1600 BC a striking dispersal of farming groups took place, starting here and ending over 5,000 miles to the east in Polynesia.

Known as the 'Lapita horizon' (after the site in New Caledonia where its decorated pottery was first identified), this precocious expansion – which called into being the world's first deep-ocean outrigger canoes – is often connected to the spread of Austronesian languages. Rice and millet, poorly suited to tropical climates, were jettisoned in its early stages of dispersal. But as the Lapita horizon advanced, their place was taken by a rich admixture of tubers and fruit crops encountered along the way, together with a growing menagerie of animal domesticates (pigs, joined by dogs and chickens; rats too hitched along for the ride). These species travelled with Lapita colonists to previously uninhabited islands – among them Fiji, Tonga

and Samoa – where they put down roots (quite literally, in the case of taro and other tubers).[31]

Like the Linear Pottery farmers of central Europe, Lapita groups seem to have avoided established centres of population. They gave a wide berth to the forager stronghold of Australia, and skirted largely clear of Papua New Guinea, where a local form of farming was already well established in the uplands around the Wahgi valley.[32] On virgin islands and beside vacant lagoons they founded their villages, comprising houses perched on stilts. With stone adzes, a mainstay of their travelling toolkit, they cleared patches of forest to make gardens for their crops – taroes, yams and bananas – which they supplemented with animal domesticates and a rich diet of fish, shellfish and marine turtles, wild birds and fruit bats.[33]

Unlike Europe's first farmers, the carriers of the Lapita horizon diversified their economy continuously as they spread. And this was not just true of their crops and animals. Voyaging eastwards, Lapita peoples left a trail of distinctive pottery, their most consistent signal in the archaeological record. Along the way they also encountered many new materials. The most valued, such as particular types of shell, were crafted into multi-media ornaments – arm rings, necklaces, pendants – which left a trace on Melanesian and Polynesian island culture that was still visible many centuries later, when Captain Cook (unwittingly retracing the steps of Lapita) caught sight of New Caledonia in 1774 and wrote that it reminded him of Scotland.

Lapita prestige items also included bird-feather headdresses (depicted on the pottery), fine pandanus leaf mats and obsidian. Obsidian blades, circulating thousands of miles away from their sources in the Bismarck Archipelago, were used in tattooing and scarification to apply pigment and plant matter to the skin. While the tattoos themselves do not survive, the impressed decoration of Lapita pots gives some hint of their underlying schema, transferred from skin to ceramic. More recent traditions of Polynesian tattooing and body art – 'wrapping the body in images', as a famous anthropological study puts it – remind us how little we really know

of the vibrant conceptual worlds of earlier times, and those who first carried such practices across remote Pacific island-scapes.[34]

ON THE CASE OF AMAZONIA, AND THE POSSIBILITIES OF 'PLAY FARMING'

On first inspection, these three variations on 'the Neolithic' – European, African, Oceanic – might seem to have almost nothing in common. However, all share two important features. First, each involved a serious commitment to farming. Of the three, the Linear Pottery culture of Europe enmeshed itself most deeply in the raising of cereals and livestock. The Nile valley was fully wedded to its herds, as was the Lapita to its pigs and yams. In every case, the species in question was fully domesticated, reliant on human intervention for its survival, and was no longer able to reproduce unassisted in the wild. For their part, the people in question had oriented their lives around the needs of certain plants and animals; enclosing, protecting and breeding those species was a perennial feature of their existence and a cornerstone of their diets. All of them had become 'serious' farmers.

Second, all three cases involved a targeted spread of farming to lands largely uninhabited by existing populations. The highly mobile Neolithic of the Nile valley extended seasonally into the adjacent steppe-desert, but avoided regions that were already densely settled, such as the Nile delta, the Sudanese *gezira* and the major oases (including the Fayum, where lakeside fisher-foragers prevailed, adopting and abandoning farming practices largely as it suited them).[35] Similarly, the Linear Pottery culture of Europe took root in niches left open by Mesolithic foragers, such as patches of loess soil and unused river levees. The Lapita horizon, too, was a relatively closed system, interacting with others when necessary, but otherwise enfolding new resources into its own pattern of life. Serious farmers tended to form societies with hard boundaries, ethnic and, in some cases, also linguistic.[36]

But not all early farming expansions were of this ‘serious’ variety. In the lowland tropics of South America, archaeological research has uncovered a distinctly more playful tradition of Holocene food production. Similar practices were still widely in evidence in Amazonia until recently, such as we found among the Nambikwara of Brazil’s Mato Grosso region. Well into the twentieth century, they spent the rainy season in riverside villages, clearing gardens and orchards to grow a panoply of crops including sweet and bitter manioc, maize, tobacco, beans, cotton, groundnuts, gourds and more besides. Cultivation was a relaxed affair, with little effort spent on keeping different species apart. And as the dry season commenced, these tangled house gardens were abandoned altogether. The entire group dispersed into small nomadic bands to hunt and forage, only to begin the whole process again the following year, often in a different location.

In Greater Amazonia, such seasonal moves in and out of farming are documented among a wide range of indigenous societies and are of considerable antiquity.[37] So is the habit of keeping pets. It is often stated that Amazonia has no indigenous animal domesticates, and from a biological standpoint this is true. From a cultural perspective, things look more complicated. Many rainforest groups carry with them what can only be described as a small zoo comprising tamed forest creatures: monkeys, parrots, collared peccaries, and so on. These pets are often the orphaned offspring of animals hunted and killed for food. Taken in by human foster-parents, fed and nurtured through infancy, they become utterly dependent on their masters. This subservience lasts into maturity. Pets are not eaten. Nor are their keepers interested in breeding them. They live as individual members of the community, who treat them much like children, as subjects of affection and sources of amusement.[38]

Amazonian societies blur our conventional distinction between ‘wild’ and ‘domestic’ in other ways. Animals they routinely hunt and capture for food include peccary, agouti and others we would classify as ‘wild’. Yet these same species are locally considered as already domesticated, at least in the sense of being subjects of supernatural ‘masters of the animals’ who

protect them and to whom they are bound. ‘Master’ or ‘Mistress of the Animals’ figures are actually very common in hunting societies; sometimes they take the form of a huge or perfect specimen of a certain type of beast, a kind of embodiment of the species, but at the same time they appear as human or human-like owners of the species, to whom the souls of all deer, or seals, or caribou must be returned after hunters take them. In Amazonia, what this means in practice is that people avoid intervening in the reproduction of those particular species lest they usurp the role of spirits.

In other words, there was no obvious cultural route, in Amazonia, that might lead humans to become both the primary carers for and consumers of other species; relationships were either too remote (in the case of game) or too intimate (in the case of pets). We are dealing here with people who possess all the requisite ecological skills to raise crops and livestock, but who nevertheless pull back from the threshold, maintaining a careful balancing act between forager (or better, perhaps, forester) and farmer.[39]

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Amazonia shows how this ‘in-and-out-of-farming’ game could be far more than a transient affair. It seems to have played out over thousands of years, since during that time there is evidence of plant domestication and land management, but little commitment to agriculture.[40] From 500 BC, this neotropical mode of food production expanded from its heartlands on the Orinoco and Rio Negro, tracking river systems through the rainforest, and ultimately becoming established all the way from Bolivia to the Antilles. Its legacy is clearest in the distribution of living and historical groups speaking languages of the Arawak family.[41]

Arawak-speaking groups were famed in recent centuries as master blenders of culture – traders and diplomats, forging diverse alliances, often for commercial advantage. Over 2,000 years ago, a similar process of strategic cultural mixing (quite unlike the avoidance strategies of more ‘serious’ farmers) seems to have brought about the convergence of the Amazon basin into a regional system. Arawak languages and their

derivatives are spoken all along the *várzea* (alluvial terraces), from the mouths of the Orinoco and Amazon to their Peruvian headwaters. But their users have little in the way of shared genetic ancestry. The various dialects are structurally closer to those of their non-Arawak neighbours than to each other, or to any putative *Ur*-language.

The impression is not at all of a uniform spread, but a targeted interweaving of groups along the main routes of canoe-borne transport and trade. The result was an interlaced network of cultural exchange, lacking clear boundaries or a centre. The latticework schema on Amazonian pottery, cotton fabrics and skin painting – recurring in strikingly similar styles from one edge of the rainforest to the other – seem to model these connective principles, entangling human bodies in a complex cartography of relations.[42]

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Until quite recently, Amazonia was regarded as a timeless refuge of solitary tribes, about as close to Rousseau or Hobbes's State of Nature as one could possibly get. As we've seen, such romantic notions persisted in anthropology well into the 1980s, through studies that cast groups like the Yanomami in the role of 'contemporary ancestors', windows on to our evolutionary past. Research in the fields of archaeology and ethnohistory is now overturning this picture.

We now know that, by the beginning of the Christian era, the Amazonian landscape was already studded with towns, terraces, monuments and roadways, reaching all the way from the highland kingdoms of Peru to the Caribbean. The first Europeans to arrive there in the sixteenth century described lively floodplain settlements governed by paramount chiefs who dominated their neighbours. It is tempting to dismiss these accounts as adventurers' hyperbole, designed to impress the sponsors at home – but, as archaeological science brings the outlines of this rainforest civilization into view, it is increasingly difficult to do so. Partly this new understanding is the result of controlled research; partly a

consequence of industrial deforestation, which in the Upper Amazon basin (looking west to the Andes) has exposed from the canopy a tradition of monumental earthworks, executed to precise geometrical plans and linked by road systems.[43]

What exactly was the reason for this ancient Amazonian efflorescence? Up until a few decades ago, all these developments were explained as the result of yet another 'Agricultural Revolution'. It was supposed that, in the first millennium BC, intensified manioc-farming raised Amazonian population levels, generating a wave of human expansion throughout the lowland tropics. The basis for this hypothesis lay in finds of domesticated manioc, dating back as early as 7000 BC; more recently, in southern Amazonia, the cultivation of maize and squash has been traced back to similarly early periods.[44] Yet there is little evidence for widespread farming of these crops in the key period of cultural convergence, beginning around 500 BC. In fact, manioc only seems to have become a staple crop *after* European contact. All this implies that at least some early inhabitants of Amazonia were well aware of plant domestication but did not select it as the basis of their economy, opting instead for a more flexible kind of agroforestry.[45]

Modern rainforest agriculture relies on slash-and-burn techniques, labour-intensive methods geared to the extensive cultivation of a small number of crops. The more ancient mode, which we've been describing, allowed for a much wider range of cultivars, grown in doorstep gardens or small forest clearings close to settlements. Such ancient plant nurseries rested on special soils (or, more strictly, 'anthrosols'), which are locally called *terra preta de índio* ('black earth of the Indians') and *terra mulata* ('brown earth'): dark earths with carrying capacities well in excess of ordinary tropical soils. The dark earths owe their fertility to absorption of organic by-products such as food residues, excrement and charcoal from everyday village life (forming *terras pretas*) and/or earlier episodes of localized burning and cultivation (*terras mulatas*).[46] Soil enrichment in ancient Amazonia was a slow and ongoing process, not an annual task.

‘Play farming’ of this sort, in the Amazon as elsewhere, has had its recent advantages for indigenous peoples. Elaborate and unpredictable subsistence routines are an excellent deterrent against the colonial State: an ecology of freedom in the literal sense. It is difficult to tax and monitor a group that refuses to stay in one location, obtaining its livelihood without making long-term commitments to fixed resources, or growing much of its food invisibly underground (as with tubers and other root vegetables).[47] While this may be so, the deeper history of the American tropics shows that similarly loose and flexible patterns of food production sustained civilizational growth on a continent-wide scale, long before Europeans arrived.

In fact, farming of this particular sort (‘low-level food production’ is the more technical term) has characterized a very wide range of Holocene societies, including the earliest cultivators of the Fertile Crescent and Mesoamerica.[48] In Mexico, domestic forms of squash and maize existed by 7000 BC.[49] Yet these crops only became staple foods around 5,000 years later. Similarly, in the Eastern Woodlands of North America local seed crops were cultivated by 3000 BC, but there was no ‘serious farming’ until around AD 1000.[50] China follows a similar pattern. Millet-farming began on a small scale around 8000 BC, on the northern plains, as a seasonal complement to foraging and dog-assisted hunting. It remained so for 3,000 years, until the introduction of cultivated millets into the basin of the Yellow River. Similarly, on the lower and middle reaches of the Yangtze, fully domesticated rice strains only appear fifteen centuries after the first cultivation of wild rice in paddy fields. It might have even taken longer were it not for a snap of global cooling around 5000 BC, which depleted wild rice stands and nut harvests.[51]

In both parts of China, long after their domestication pigs still came second to wild boar and deer in terms of dietary significance. This was also the case in the wooded uplands of the Fertile Crescent, where Çayönü with its House of Skulls is located, and where human–pig relations long remained more a matter of flirtation than full domestication.[52] So while it’s tempting to hold Amazonia up as a ‘New World’ alternative to the ‘Old

World Neolithic', the truth is that Holocene developments in both hemispheres are starting to look increasingly similar, at least in terms of the overall pace of change. And in both cases, they look increasingly un-revolutionary. In the beginning, many of the world's farming societies were Amazonian in spirit. They hovered at the threshold of agriculture while remaining wedded to the cultural values of hunting and foraging. The 'smiling fields' of Rousseau's *Discourse* still lay far off in the future.

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It may be that further research reveals demographic fluctuations among early farming (or forester-farmer) populations in Amazonia, Oceania or even among the first herding peoples of the Nile valley, similar to those now observed for central Europe. Indeed, some sort of decline, or at least major reconfiguration of settlement, took place in the Fertile Crescent itself during the seventh millennium BC.[53] At any rate, we shouldn't be too categorical about the contrasts among these various regions, given the different amounts of evidence available for each. Still, based on what is currently known, we can at least reframe our initial question and ask: why did Neolithic farmers in certain parts of Europe initially suffer population collapse on a scale currently unknown, or undetected elsewhere?

Clues lie in the tiniest of details.

Cereal-farming, as it turns out, underwent some important changes during its transfer from Southwest Asia to central Europe via the Balkans. Originally there were three kinds of wheat (einkorn, emmer and free threshing) and two kinds of barley (hulled and naked) under cultivation, but also five different pulses (pea, lentil, bitter vetch, chickpea and grass pea). By contrast, the majority of Linear Pottery sites contain just glume wheats (emmer and einkorn) and one or two kinds of pulse. The Neolithic economy had become increasingly narrow and uniform, a diminished subset of the Middle Eastern original. Furthermore, the loess landscapes of central Europe offered little topographical variability and few opportunities to add

new resources, while dense forager populations limited expansion towards the coasts.[54]

Almost everything came to revolve around a single food web for Europe's earliest farmers. Cereal-farming fed the community. Its by-products – chaff and straw – provided fuel, fodder for their animals, as well as basic materials for construction, including temper for pottery and daub for houses. Livestock supplied occasional meat, dairy and wool, as well as manure for gardens.[55] With their wattle-and-daub longhouses and sparse material culture, these first European farming settlements bear a peculiar resemblance to the rural peasant societies of much later eras. Most likely, they were also subject to some of the same weaknesses – not just periodic raiding from the outside, but also internal labour crunches, soil exhaustion, disease and harvest failures across a whole string of like-for-like communities, with little scope for mutual aid.

Neolithic farming was an experiment that could fail – and, on occasion, did.

BUT WHY DOES IT ALL MATTER? (A QUICK REPRISE ON THE DANGERS OF TELEOLOGICAL REASONING)

In this chapter we have tracked the fate of some of the world's first farmers as they hopped, stumbled and bluffed their way around the globe, with mixed success. But what does this tell us about the overall course of human history? Surely, the sceptical reader might object, what matters in the wider scheme of things are not the first faltering steps towards agriculture, but its long-term effects. After all, by no later than 2000 BC agriculture was supporting great cities, from China to the Mediterranean; and by 500 BC food-producing societies of one sort or another had colonized pretty much all of Eurasia, with the exception of southern Africa, the sub-Arctic region and a handful of subtropical islands.

A sceptic might continue: agriculture alone could unlock the carrying capacity of lands that foragers were either unable or unwilling to exploit to

anything like the same degree. So long as people were willing to give up their mobility and settle, even small parcels of arable soil could be made to yield food surpluses, especially once ploughs and irrigation were introduced. Even if there were temporary downturns, or even catastrophic failures, over the long term the odds were surely always stacked in favour of those who could intensify land use to sustain ever larger and denser populations. And let's face it, the same sceptic might conclude, the world's population could only grow from perhaps 5 million at the start of the Holocene to 900 million by AD 1800, and now to billions, because of agriculture.

How too, for that matter, could such large populations be fed, without chains of command to organize the masses, formal offices of leadership; full-time administrators, soldiers, police, and other nonfood-producers, who in turn could only be supported by the surpluses that agriculture provides? These seem like reasonable questions to ask, and those who make the first point almost invariably make the second. But in doing so, they risk parting company with history. You can't simply jump from the beginning of the story to the end, and then just assume you know what happened in the middle. Well, you can, but then you are slipping back into the very fairy tales we've been dealing with throughout this book. So instead, let's recap very briefly what we've learned about the origins and spread of farming, and then turn to examine some of the more dramatic things that actually did happen to human societies over the last 5,000 or so years.

Farming, as we can now see, often started out as an economy of deprivation: you only invented it when there was nothing else to be done, which is why it tended to happen first in areas where wild resources were thinnest on the ground. It was the odd one out in the strategies of the Early Holocene, but it had explosive growth potential, especially after domestic livestock were added to cereal crops. Even so, it was the new kid on the block. Since the first farmers made more rubbish, and often built houses of baked mud, they are also more visible to archaeologists. That's one reason why imaginative infilling is necessary if we want to avoid missing the

action going on in much richer environments at the same time, among populations still largely reliant on wild resources.

Seasonally erected monuments like those of Göbekli Tepe or Lake Shigirskoe are as clear a signal as one could wish for that big things were afoot among Holocene hunter-fisher-gatherers. But what were all the non-farming people doing, and where were they living, for the rest of the time? Upland forested areas, like the uplands of eastern Turkey or the foothills of the Urals, are one candidate, but since most construction was in wood, very little of this habitation survives. Most likely, the largest communities were concentrated around lakes, rivers and coastlands, and especially at their junctures: delta environments – such as those of southern Mesopotamia, the lower reaches of the Nile and the Indus – where many of the world's first cities arose, and to which we must now turn in order to find out exactly what living in large and densely populated settlements really did (and did not) imply for the development of human societies.